

# 'Protecting What Matters'- Reflections on a Central Bank's Role at Time of War

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## Introduction

Since 24 February 2022, the sovereign state of Ukraine has been under Russian siege,<sup>1</sup> resulting in massive evacuation, displacement of its peoples and the devastation of major cities.<sup>2</sup> Defense and humanitarian concerns are of foremost importance at the moment, but this essay 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)<sup>3</sup> in its various capacities since 24 February 2022- as the regulator for the banking system, the payment services settlement provider, and the central bank to the state. This essay 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,<sup>4</sup> especially in terms of longer-term thinking for the restoration of order, governance and the normal functioning of institutions.<sup>5</sup> 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. It is important to consider how the NBU as a young central bank<sup>6</sup> has stepped up, during a period of martial law, in a way that helps protect and preserve the independent state. In this manner, the NBU's roles reinforce the legitimacy of the state. However, martial law should not erode the institutional distinctness of the young central bank, even if a debate about the central bank's independence is not particularly productive at the moment.<sup>7</sup> We discuss three key

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We thank ....

<sup>1</sup> The position in international law is discussed in Philippe Sands, 'Putin's use of military force is a crime of aggression' (Financial Times, 28 Feb 2022), <https://www.ft.com/content/cbbdd146-4e36-42fb-95e1-50128506652c> and is not canvassed in this essay.

<sup>2</sup> 'Ukraine conflict: Before and after images reveal Russian destruction' (BBC News, 4 March 2022), <https://www.bbc.co.uk/news/world-europe-60610840>; 'How many refugees have fled Ukraine and where are they going?' (BBCNews, 7 March 2022), <https://www.bbc.co.uk/news/world-60555472>.

<sup>3</sup> NBU Makes Changes to Resolution No. 18 On the Operation of the Banking System Under Martial Law Dated 24 February 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>.

<sup>4</sup> Max Radin, Martial Law and the State of Siege, 30 CALIF. L. REV. 634 (1942).

<sup>5</sup> Frederick Pollock, What Is Martial Law, 18 L. Q. REV. 152 (1902).

<sup>6</sup> <https://bank.gov.ua/en/about/nbu-history>.

<sup>7</sup> The central bank's legitimacy can be regarded as rooted fundamentally in 'output' legitimacy, ie what is achieved in relation to primarily economic goals, Erik Jones, Output Legitimacy and the Global Financial Crisis: Perceptions Matter, 47 Journal of Common Market Studies 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* (2004), ch6. 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

roles for the NBU at this time, in terms of: provisioning war finance that is crucial to defense; 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 we argue that how these conflicting objectives are navigated and balanced would be important for the NBU's institutional preservation, as its institutional preservation, legitimacy and credibility ultimately contribute to the state's preservation. Further, we argue that the international support of peer-level central banks would be important for some of the NBU's objectives and ultimately, state preservation. The NBU's institutional preservation would also be a pre-condition for mobilizing such 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. The Bank of England for example was historically formed for the purpose of financing war and managing the government's budget and finances.<sup>8</sup> The NBU is now placed in a similar position of being chiefly responsible for war finance<sup>9</sup> as well as fund-raising war finance for the government.<sup>10</sup> This role is immediately important, but as Section A discusses, there are challenging choices that need to be made, in relation to inflation-targeting goals and the mobilization of state-owned banks.<sup>11</sup> 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.

### **(b) Bank prudential supervision and maintaining the system for inter-bank payments and settlement**

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Institutional Path of Central Bank Independence' in Peter Conti-Brown and Rosa M Lastra (eds), *Research Handbook in Central Banking* (Cheltenham: Edward Elgar 2017), ch15; Kathleen McNamara *Rational Fictions: Central Bank Independence and the Social Logic of Delegation*, 25 *West European Politics* 47-76 (2002). Indeed, if independent central banks suffer from democratic deficit, then output legitimacy becomes all the more important.

<sup>8</sup> Forrest Capie and Geoffrey Wood, 'The Development of the Bank of England's Objectives: Evolution, Instruction or Reaction?' in Peter Conti-Brown and Rosa M Lastra (eds), *Research Handbook in Central Banking* (Cheltenham: Edward Elgar 2017), ch3.

<sup>9</sup> The NBU also mobilises Ukrainian banks, the largest of which are state-owned, to finance the government's war effort, 'Crediting Cash to Buy War Bonds Simplified for Banks' (11 March 2022), <https://bank.gov.ua/en/news/all/bankam-sproscheno-zarahuvannya-gotivkovich-koshtiv-dlya-pridbannya-vyiskovich-obligatsiy>. Further, it also coordinates acceptance of donations for army finance and humanitarian aid, see <https://bank.gov.ua/en/about/support-the-armed-forces>; <https://bank.gov.ua/en/about/humanitarian-aid-to-ukraine>.

<sup>10</sup> See Section A in this essay.

<sup>11</sup> PrivatBank, nationalised in 2016, as well as the OschadBank and Ukreximbank are state-owned.

Second, the NBU, like many central banks,<sup>12</sup> is the bank regulator for banks authorised to operate and provide services in Ukraine.<sup>13</sup> Further, the NBU is also the provider of payment and settlement services that cover 97% of the Ukrainian market.<sup>14</sup> This role supplies a public good, complementary to central banks' role as bank regulator. The central bank acts as bankers' bank and the settlement asset of central bank reserves is regarded as the 'safest' asset for inter-bank settlement for payment transactions.<sup>15</sup> Central banks have evolved to provide bank-to-bank settlement for payment transactions, reinforcing its central role in the economy with the legitimacy this confers.<sup>16</sup> In providing bank regulation and oversight, 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.<sup>17</sup>

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 Sections A and B. 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.<sup>18</sup> 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 the 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 Sections A and B.

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). Section B

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<sup>12</sup> 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, José Touya and Lorena Zamalloa, 'Issues on Placing Banking Supervision at the Central Bank' in Tomás JT Baliño and Carlo Cottarelli (eds), *Frameworks for Monetary Stability* (IMF 1994), ch26. 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. Charles AE Goodhart, 'The Changing Role of Central Banks' (BIS, Nov 2010), <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.225.4092&rep=rep1&type=pdf>; Joe Peek, Eric S Rosengren and Geoffrey MB Tootell, 'Is Bank Supervision Central to Central Banking' (1999), <https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.200.7921&rep=rep1&type=pdf>.

<sup>13</sup> <https://bank.gov.ua/en/supervision/about#:~:text=The%20NBU%20supervises%20and%20regulates,in%20full%20and%20on%20time./>

<sup>14</sup> <https://bank.gov.ua/en/payments/sep>.

<sup>15</sup> Benjamin Geva, 'Central Banks and Payment Systems Risks' in Peter Conti-Brown and Rosa M Lastra (eds), *Research Handbook in Central Banking* (Cheltenham: Edward Elgar 2017), ch21.

<sup>16</sup> Joseph G Haubrich and James G Thomson, *Umbrella Supervision and the Role of the Central Bank*, 10 *Journal of Banking Regulation* 17 (2008).

<sup>17</sup> Consistent with international standards for bank regulators, see Part II, Basel Committee on Banking Supervision, *Bank for International Settlements, Core Principles for Effective Bank Supervision* (2012), <https://www.bis.org/publ/bcbs230.pdf>.

<sup>18</sup> Drawing from literature regarding critical infrastructure protection and resilience, Section B.

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 Section B.

Across the globe central banks have slightly different mandates. For example, while it is widely accepted that modern central banks need to focus on price and monetary stability,<sup>19</sup> the US Federal Reserve System has an additional mandate to support full economic employment.<sup>20</sup> The ECB has also been mandated with supporting the EU's 'general economic policies' consistent with price stability.<sup>21</sup> In this manner, whether explicit or implicit, central banks worldwide are expected to support economic welfare and broad government policies,<sup>22</sup> especially in the wake of crises.<sup>23</sup>

It is likely that the NBU will have broader roles in due course to support economic restoration and rebuilding. Its institutional preservation, in terms of its independence and technocratic expertise, is important for legitimacy in the eyes of both the government and the public, and will be key to its success in these roles. We argue in Section C that there is a role for the international network of central banks, primarily the Financial Stability Board Regional Consultative Group for Europe,<sup>24</sup> of which the NBU is a member, to support the NBU's institutional preservation. In the face of already-growing international coordination and cooperation amongst central banks and financial regulators,<sup>25</sup> this proposal may not be as unconventional as it seems. Section D provides a brief conclusion.

### **A. Provisioning War Finance**

Authoritarian governments often use their central banks for their own purposes and often central banks have little real institutional independence and fiscally funds such governments, a hazardous practice known as 'monetary financing'.<sup>26</sup> Many such regimes have used the central bank as a means of pillaging the banking system.<sup>27</sup> Monetary financing

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<sup>19</sup> Paul Tucker, 'How Can Central Banks Deliver Credible Commitment and be Emergency Institutions' in John H Cochrane and John B Taylor, *Central Bank Governance and Oversight Reform* (Stanford: Hoover Institution Press 2016), ch 1.

<sup>20</sup> Discussed in Thammarak Moenjok, *Central Banking* (Chichester: Wiley 2014), chs 3, 4.

<sup>21</sup> Art 127(1), Consolidated version of the Treaty on the Functioning of the European Union.

<sup>22</sup> Mohamed A El-Erian, *The Only Game in Town* (NH: Yale University Press 2016).

<sup>23</sup> Tucker (2016).

<sup>24</sup> <https://www.fsb.org/about/rcgs/list-of-members-of-the-fsb-regional-consultative-group-for-europe/>.

<sup>25</sup> Section C.

<sup>26</sup> Adair Turner, 'The Case for Monetary Finance – An Essentially Political Issue' (2015), <https://www.imf.org/external/np/res/seminars/2015/arc/pdf/adair.pdf>.

<sup>27</sup> Charles Calomiris and Stephen Haber, *Fragile by Design: The Political Origins of Banking Crises and Scarce Credit* (Princeton University Press, 2014).

risks runaway inflation, an unstable and tainted currency, investor flight and ultimately, adverse economic welfare for a country's citizens.

Governments and their objectives can be financed in a variety of ways. These carry three-fold risks to governments, institutional robustness and citizen welfare.<sup>28</sup> Generally, states can finance war by a mixture of increased taxation, printing more money and borrowing.<sup>29</sup> 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. However, the imposition of martial law may confound these objectives by giving rise to a variety of risks including 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.<sup>30</sup>

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

### **Central Bank Monetary Financing**

The NBU has, under martial law, purchased 20billion UAH worth of government 'war bonds' in order to provide financially for the government. It also signals willingness to support the government's critical expenses if this is needed, stressing the temporariness of such measures.<sup>31</sup> The direct fiscal financing of the government by the central bank is often described as a hazardous practice,<sup>32</sup> which can result in moral hazard leading to severe 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

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<sup>28</sup> In terms of the institutions of economic and social order or governance, such as the cherished tenet of central bank independence, see Paul Tucker, 'On Central Bank Independence' (May 2020), <https://www.imf.org/external/pubs/ft/fandd/2020/05/paul-tucker-unelected-power-on-central-bank-independence.htm>, and financial stability supervision discussed in Section B.

<sup>29</sup> Stephen Broadberry and Peter Howlett, 'The United Kingdom during World War One: Business as Usual?' in Stephen Broadberry and Mark Harrison (eds), *The Economics of World War 1* (Cambridge University Press, Cambridge, 2005), 215. It is interesting to note that Imperial Germany is described in similar terms to Putin's Russia, 'it is the story of a half-constitutional yet undemocratic system in denial of defeat, unable to compromise, unable to make peace...', 41.

<sup>30</sup> Nicholas Lambert, *Planning Armageddon*, (Harvard University Press, Cambridge, Mass, 2012), 173. Lord Desart chaired a sub-committee of the UK's Committee of Imperial Defence.

<sup>31</sup> NBU Buys Out War Bonds for UAH 20 Billion and May Continue Financing Critical Expenses of Government under Martial Law' (8 March 2022), <https://bank.gov.ua/en/news/all/natsionalniy-bank-vikupiv-viyskovi-obligatsiyi-na-20-mlrd-grn-i-za-neobhidnosti-prodovjit-finansuvati-kritichni-vidatki-uryadu-v-umovah-voyennogo-stanu>.

<sup>32</sup> Turner (2015).

it issues.<sup>33</sup> 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'<sup>34</sup> in alternative currencies,<sup>35</sup> 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.<sup>36</sup> There may be a further depletion of the nation's foreign currency reserves in meeting onerous debt obligations. However, despite the dangers of monetary financing, there may be a sober and careful case for using this, such as during crises and war.<sup>37</sup>

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 and this adversely affected the real economy. The provision and distribution of food and coal slipped from their grasp as a parallel barter economy developed.<sup>38</sup> In contrast to the rigours of martial law, the NBU has maintained the temporariness of monetary financing and its continued distinctness as an expert and independent entity. It has developed its communication strategy, focused on explaining the temporariness of monetary financing while making monetary policy decisions in a manner that aims at mitigating moral hazard. In other words, the NBU has continued to signal its independence and expertise. 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,<sup>39</sup> but also for the prospects of future restoration.<sup>40</sup> However, as Lastra<sup>41</sup>

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<sup>33</sup> Richard CK Burdekin, 'Seignorage', [http://assets.press.princeton.edu/chapters/reinert/9article\\_burdekin\\_seignorage.pdf](http://assets.press.princeton.edu/chapters/reinert/9article_burdekin_seignorage.pdf).

<sup>34</sup> Corinne Zellweger-Gutknecht, Benjamin Geva and Seraina N. Grünwald, Digital Euro, Monetary Objects and Price Stability—A Legal Analysis, 7(2) *Journal of Financial Regulation* 284 (2021).

<sup>35</sup> There is already a risk of this in Ukrainian markets, 'Setting Prices in Foreign Currency in Ukraine Is Illegal and Immoral' (3 March 2022), <https://bank.gov.ua/en/news/all/vstanovlennya-tsin-v-ukrayini-v-inozemniy-valyuti-ye-nezakonnim-ta-amoralnim>.

<sup>36</sup> Martin Wolf, 'Monetary financing demands careful and sober management' (Financial Times, 9 April 2020), <https://www.ft.com/content/dc233540-798e-11ea-9840-1b8019d9a987>.

<sup>37</sup> Ibid.

<sup>38</sup> Gerald Feldman, *Army, Industry and Labor in Germany, 1914-1918* (Berg, Providence, RI, 1966), 443 and 481.

<sup>39</sup> Patrick Shea, Financing Victory: Sovereign Credit, Democracy, and War, 58 *Journal of Conflict Resolution* 771 (2013) and for civil conflict see Ana Carolina Garriga, Central Banks and Civil War Termination, 20 *Journal of Peace Research* 1-18 (2021).

<sup>40</sup> Paul Poast, Central Banks at War, 69 *International Organisation* 63 (2015).

<sup>41</sup> Lastra (2017). Also see William Bernhard, A Political Explanation of Variations in Central Bank Independence, 92 *The American Political Science Review* 311 (1998).

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 would be important for the NBU to continue to be able to protect its institutional credibility by maintaining a sound balance amongst its challenging objectives.

In the current struggle to meet war finance needs while mitigating the hazards described above, the NBU has performed a size of monetary financing that is not excessive, and also raised interest rates to 11%,<sup>42</sup> 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%, an attractive return for investors. Despite this being a high interest rate and relatively punitive for the economy it does provide a level of certainty.<sup>43</sup> However, we argue shortly in Section B 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. These inflationary pressures are not helped by Ukrainian refugees having to exchange their national currency, the hryvnia (UAH) for foreign currency, therefore creating an unintended 'demand deserting' pressure on the UAH. This phenomenon would put further pressure on spending down 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 has implications for the limits of external financing for war.

### ***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. 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.<sup>44</sup> The OschadBank is the state's savings bank for citizens and the Ukreximbank (Import/export Bank) is also 100% state-owned. In peacetimes, state-owned banks are likely to be symbols of confidence as claims against them are implicitly 'put' 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<sup>45</sup> their contributions to war finance, and the crucial question is how the NBU, as bank regulator, navigates the balance of

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<sup>42</sup> 'Address by NBU Governor Kyrylo Shevchenko on NBU Board's Monetary Policy Decision' (3 March 2020), <https://bank.gov.ua/en/news/all/zvernennya-golovi-natsionalnogo-banku-kirila-shevchenka-schod-rishennya-pravlinnya-natsionalnogo-banku-z-monetarnih-pitan>.

<sup>43</sup> This high interest rate may however not compare too unfavourably to inflation developments in other developed Western economies, see <https://tradingeconomics.com/european-union/inflation-rate> for the EU for example.

<sup>44</sup> 'Ukraine's biggest lender PrivatBank nationalised' (BBCNews, 19 Dec 2016), <https://www.bbc.co.uk/news/business-38365579>.

<sup>45</sup> 'PrivatBank transferred UAH 28 billion in dividends for 2021 to the state budget' (3 March 2022), <https://en.privatbank.ua/news/2022/3/5/1571>. Although it is not clear the extent of support, OschadBank has declared financial provision for the government, 'Public letter to Foreign Ambassadors to Ukraine and International Financial Institutions from Oschadbank's Supervisory Board' (28 Feb 2022), <https://www.oschadbank.ua/en/news-category/novini-osadu>.

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 Section B.

For the former dilemma, 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 conservatively against capital provision and excessive risk-taking or concentrations in assets are both controlled under standards in micro-prudential regulation.<sup>46</sup> In terms of bank purchases of war bonds, it is likely that these would not be constrained as large exposures, as sovereign exposures have been exempt from large exposure controls.<sup>47</sup> Further, there would be an incentive for the NBU not to require war bonds to be risk-weighted too conservatively so that banks are not hampered by capital regulation constraints to buy them. Would 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?<sup>48</sup> Further, state-owned banks can provide finance to the government through large dividend repayments,<sup>49</sup> 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 would balance its role as bank regulator, whose 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 would be stretched with meeting banks' needs for with additional liquidity and shoring up bank solvency, in the face of withdrawal pressures as we discuss in Section B. However, the NBU has limited its supervision of banks<sup>50</sup> and suspended bank financial reporting under martial law.<sup>51</sup> These suspensions are able to lift off pressure on

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<sup>46</sup> See generally, chapters 8, 9, Iris H-Y Chiu and Joanna Wilson, *Banking Law and Regulation* (Oxford: OUP 2019).

<sup>47</sup> P18, Basel Committee, *The Regulatory Treatment of Sovereign Exposures* (2018), <https://www.bis.org/bcbs/publ/d425.pdf>.

<sup>48</sup> 'Fitch Downgrades Ukraine to 'CCC'' (25 Feb 2022), <https://www.fitchratings.com/research/sovereigns/fitch-downgrades-ukraine-to-ccc-25-02-2022>.

<sup>49</sup> Such as PrivatBank's dividend payment to the government, note 45.

<sup>50</sup> 'NBU Takes Further Steps to Sustain Operation of the Banking System Under Martial Law' (25 Feb 2022), <https://bank.gov.ua/en/news/all/natsionalniy-bank-vjivaye-chergovih-zahodiv-dlya-pidtrimannya-stabilnosti-bankivskoyi-sistemi-na-chas-diyi-v-ukrayini-voyennogo-stanu>; 'NBU Continues to Take Measures to Minimize Adverse Impact of Russian Military Aggression on Banking System of Ukraine' (7 March 2022), <https://bank.gov.ua/en/news/all/natsionalniy-bank-prodovjuye-vjivati-zahodiv-dlya-minimizatsiyi-negativnogo-vplivu-rosiyskoyi-viyskovoyi-agresiyi-na-bankivsku-sistemu-ukrayini>.

<sup>51</sup> 'On Procedure for Submission of Financial Statements by Banks under Martial Law' (9 March 2022), <https://bank.gov.ua/en/news/all/pro-poryadok-skladannya-ta-podannya-bankami-finansovoyi-zvitnosti-v-umovah-voyennogo-stanu>.



banks as they face increased servicing demands.<sup>52</sup> The lack of up-to-date bank reporting to the NBU may nevertheless obscure the financial position of individual banks. This may make the NBU's financial stability goals more difficult to achieve.

A looming reality for the NBU as bank regulator is that the largest national banks are also likely to hold most of the 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. As has been seen with the current covid crisis governments can require that debts are rescheduled with a moratorium on repossessions.<sup>53</sup> However, bank solvency may still be threatened if losses have to be recognized in accordance with market value.<sup>54</sup> 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. It is likely that a mixture of bank resolution and consolidation may likely occur in due course in order to boost the sector's financial strength while a period of flexible prudential regulation application<sup>55</sup> may be needed.

Further, for the purposes of future restoration, property, residential, commercial, farm land, that are owned by state and municipal authorities will need to be cleared of mines and other munitions and in many instances be 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.<sup>56</sup> These 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 such as development funding to establish the financing corporations mentioned above in due course, for the purposes of rebuilding the nation and its economy.

### ***External Debt Financing by External Investors***

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<sup>52</sup> 'Ukraine's Banks to Work on Saturday' (10 March 2022), <https://bank.gov.ua/en/news/all/subota-12-berezhnya-2022-roku-bude-robochim-dnem-bankivskoyi-sistemi-ukrayini>.

<sup>53</sup> On a global scale this can be seen in the World Bank's debt service suspension initiative (March 2022), <https://www.worldbank.org/en/topic/debt/brief/covid-19-debt-service-suspension-initiative>; also see Iris H-Y Chiu, Andreas Kokkinis and Andrea Miglionico, Debt Expansion as 'Relief and Rescue' at the Time of the Covid-19 Pandemic: Insights from the Legal Theory of Finance, 28 *Indiana Journal of Global Legal Studies* 29 (2021) on debt moratoria measures compared between the US, EU and UK.

<sup>54</sup> Applying IFRS7 on financial instruments evaluation, IFRS 7 Financial Instruments: Disclosures, <https://www.ifrs.org/issued-standards/list-of-standards/ifrs-7-financial-instruments-disclosures/>.

<sup>55</sup> Ibid and Katharina Pistor, A Legal Theory of Finance, 41 *Journal of Comparative Economics* 315 (2013), see exigencies for prudential regulation suspension and recommended principles for such suspension, Iris H-Y Chiu, Andreas Kokkinis and Andrea Miglionico, Relief and Rescue: Suspensions and Elasticity in Financial Regulation, and Lessons from the UK's Management of the Covid-19 Pandemic Crisis, *Stanford International Policy Review* 24 (2021).

<sup>56</sup> Bank of England's Post War Domestic Finance Committee, created in 1943, *The Bank of England 1939-45 (Unpublished War History)*, Chapter X, 252-268, <https://www.bankofengland.co.uk/archive/bank-of-england-1939-45-ww2>.

It is already acknowledged that internal avenues of finance are insufficient and the Ukrainian government has sought finance from external investors in relation to its war bonds<sup>57</sup> as well as a loan under the 'Rapid Financing Facility' from the International Monetary Fund (IMF).<sup>58</sup> In parallel the World Bank has devised an emergency package of support: 'Financing of Recovery from Economic Emergency in Ukraine ('FREE Ukraine') of almost \$0.5Bn made up of loans and guarantees.<sup>59</sup> This support has been augmented by guarantees from the Netherlands and Sweden. The World Bank has re-purposed an existing financial support arrangement, the multi-donor trust fund ('MDTF'), to funnel support from other countries.<sup>60</sup> This is also linked to a loan package from the Japanese government of \$100m promised to the Ukrainian government just before the invasion.<sup>61</sup>

Both the attractive rate of return ie 11% and the solidarity offered by many Western institutional investors are reasons for the uptake of Ukraine's war bonds.<sup>62</sup> 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 since Ukraine is already highly indebted to the IMF.<sup>63</sup> In particular, to what extent will foreign reserves in dollars<sup>64</sup> be drawn down for war finance? The exigencies of war also disrupt international trade and dollar revenues for Ukrainian exports<sup>65</sup> 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 Section B. These needs present challenging conflicting objectives for the NBU at this time in supporting the government's efforts to borrow from external financiers. The limits to external financing may come in two ways, one is the liquidity available for payments, usually in foreign currency, and the other relates to fiscal affordability and the government's solvency. The former can arguably be helped if foreign central banks agree to provide foreign currency swap lines to the NBU. The latter issue however should 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 US, to provide dollars against the foreign central bank's local currency

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<sup>57</sup> 'Ukraine Struggles to Get 'War Bonds' to Retail Investors Abroad' (Bloomberg, 8 March 2022).

<sup>58</sup> 'IMF Grants Ukraine USD 1.4 Billion in Emergency Financing' (10 March 2022), <https://bank.gov.ua/en/news/all/mvf-vidilyaye-ukrayini-14-mlrd-dol-ssha-ekstrenogo-finansuvannya>.

<sup>59</sup> World Bank Mobilizes an Emergency Financing Package of over \$700 million for Ukraine, 7 March 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>.

<sup>60</sup> World Bank, Global Procurement Partnership Multi-Donor Trust Fund, <https://www.worldbank.org/en/programs/global-public-procurement-multi-donor-trust-fund>.

<sup>61</sup>, Japan offers Ukraine \$100 million in loans in show of support (Reuters 15 February 2022), <https://www.reuters.com/markets/europe/japan-offers-ukraine-100-mln-loans-show-support-2022-02-15/>.

<sup>62</sup> Note 57.

<sup>63</sup> 'Ukraine's Debt Problem Spells Trouble' (26 Feb 2021), <https://foreignpolicy.com/2021/02/26/imf-review-ukraine-debt-gdp-linked-warrants-reform/>.

<sup>64</sup> 'International Reserves at USD 27.5 Billion in February' (7 March 2022), <https://bank.gov.ua/en/news/all/mijnarodni-rezervi-stanovili-275-mlrd-dol-ssha-za-pidsumkami-lyutogo>.

<sup>65</sup> 'Food and Metal Shipments Are Left Stranded in Ukraine Chaos' (Bloomberg, 24 Feb 2022).

as collateral.<sup>66</sup> The swap line is usually offered at a service fee but at no 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 since the global financial crisis 2007-9 and helped preserve stability in dollar funding markets.<sup>67</sup> 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 staple during the covid-19 pandemic<sup>68</sup> and reflects on the expansion of international coordination and cooperation amongst central banks.<sup>69</sup>

It can be argued that the NBU could request swap lines from the Federal Reserve and European Central Bank. The NBU has fixed its exchange rate for foreign currencies on 24 February 2022 and has limited foreign exchange operations in order to protect the value of the UAH against adverse market sentiment.<sup>70</sup> In this manner, it can be argued that 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<sup>71</sup> and it is uncertain how far beyond commercial terms central banks can extend these, a point we return to in Section B regarding how swap lines cater for Ukrainian refugees' financial needs. Section B's discussion also highlights dilemmas in relation to the NBU's priorities if it should request swap lines from foreign counterparts- which needs should swap lines serve?<sup>72</sup>

Further, although the NBU fixed its exchange rate at pre-war levels, market sentiment is volatile regarding the valuation of the UAH. In the adverse scenario of government surrender or damage to sovereignty, foreign central banks that extend swap lines may face market losses in respect of the UAH collateral they hold. It may be argued that all the NBU can do is to signal its commitment to institutional preservation, to maintain the value of the UAH by a credible monetary policy, as well as to contribute towards appropriate fiscal choices for the government ensuring 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 unlikely only a matter of liquidity in foreign currency, as the drawing down of reserves for debt payment would fiscally affect the

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<sup>66</sup> Emmanuel Carré and 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 Journal of Economics 723 (2020).

<sup>67</sup> Ibid.

<sup>68</sup> Joshua Aizenman, Hiro Ito, Gurnain Kaur Pasricha, Central Bank Swaps in the Age of Covid-19 (CEPR Working Paper, 8 April 2021), <https://voxeu.org/article/central-bank-swaps-age-covid-19>.

<sup>69</sup> Robert B Kahn and Ellen E Meade, 'International Aspects of Central Banking: Diplomacy and Coordination' in Peter Conti-Brown and Rosa M Lastra (eds), Research Handbook in Central Banking (Cheltenham: Edward Elgar 2017), ch17, 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; also Narodowy Bank Polski Decides to Grant PLN 4 billion FX Swap to Ukraine, 24 February 2022, <https://bank.gov.ua/en/news/all/natsionalniy-bank-polschi-virishiv-nadati-ukrayini-4-mlrd-zlotih-na-umovah-valyutnogo-svopu>.

<sup>70</sup> Note 3, also 'Interbank FX Market Slowly Resuming Operation' (13 March 2022),

<https://bank.gov.ua/en/news/all/mijbankivskiy-valyutniy-rinok-postupovo-vidnovlyuye-robotu>.

<sup>71</sup> Maurice Obstfeld, Jay C Shambaugh and Alan M Taylor, Financial Instability, Reserves, and Central Bank Swap Lines in the Panic of 2008, 99 American Economic Review: Papers & Proceedings 480 (2009).

<sup>72</sup> Carré and Le Maux (2020).

government and the preservation of the state. The Ukrainian government and NBU walk a tight rope in terms of fiscal balance and we suggest that the campaign for aid and donations would need to increase. The US<sup>73</sup> has already pledged a significant sum to ease Ukraine's fiscal burden. It is also in this light that the NBU's role in coordinating donation-based financing becomes important in order to alleviate the pressures of debt finance for the government.

### **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 being final in themselves and not imposing any fiscal burden upon the government at this time. 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.<sup>74</sup> This role is not ubiquitous or unequivocally well-accepted as central banks of authoritarian governments can for example be used to serve the government's perverse motivations seeking aid and distort the uses of aid.<sup>75</sup> In this respect the NBU shows clarity in relation to its crowdfunding campaign, ie funding the defense and funding humanitarian needs as distinct purposes. Maintaining clear and distinct purposes helps promote accountability to the public and we suggest that it is important to keep clear accounting records of aid expenditure.

As financial technology has become accepted in the private sector, the NBU's utilisation of this form of fund-raising outreach has been relatively effective. It can be queried whether this compromises central bank independence as the NBU acts as 'fund-raiser' for the government. However, the objective of such fund-raising 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 fund-raising role is also natural flowing 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 cryptocurrency. Although the NBU does not overtly accept cryptocurrency, the government's own fund-raising efforts has welcomed private cryptocurrency donations, such as in the major cryptocurrencies of bitcoin and ether.<sup>76</sup> It has also been reported that such cryptocurrency has directly been

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<sup>73</sup> 'Biden Pledges \$800m in military aid for Ukraine' (CBS News, 16 March 2022), <https://www.cbsnews.com/video/biden-pledges-800-million-in-aid-for-ukraine-as-russia-ramps-up-attacks/>.

<sup>74</sup> 'About UAH 12 Billion Raised for Army and Humanitarian Needs' (15 March 2022), <https://bank.gov.ua/en/news/all/na-pidtrimku-armiyi-ta-gumanitarnu-dopomogu-zibrano-blizko-12-mlrd-grn>.

<sup>75</sup> 'Assad regime 'siphons millions in aid' by manipulating Syria's currency; Government pockets half of donations as central bank forces UN agencies to use lower exchange rate' (The Guardian, 21 Oct 2021).

<sup>76</sup> 'Ukraine accepts dogecoin, other cryptocurrencies for donations as funding rises to \$35 million' (CNBCNews, 2 March 2022), <https://www.cnbc.com/2022/03/02/ukraine-dogecoin-other-cryptocurrencies-accepted-for-donations.html#:~:text=On%20Feb.,assets%20such%20as%20fiat%20currency>.

used to fund purchases of military equipment.<sup>77</sup> Cryptocurrency such as bitcoin has gained valuable asset value over time<sup>78</sup> and opening up to such donations broadens the reach of fund-raising efforts and brings in valuable contributions. Despite there being sceptical writings<sup>79</sup> regarding the volatility of cryptocurrencies, 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 endorsement of receipt of cryptocurrency is akin to accepting donations in kind. This is not inconsistent with the jurisprudence in many jurisdictions treating cryptocurrency as 'property'.<sup>80</sup> 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'.

## **B. Protecting Financial Stability and Citizens' Welfare**

In this Section 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, would 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,<sup>81</sup> many ordinary citizens' principal financial resources are in their bank accounts.<sup>82</sup>

However, such herding behaviour, even if rational for each individual, is collectively destabilising.<sup>83</sup> 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, such as the maintenance of correspondent banking relationships with foreign banks so that Ukrainian refugees abroad may be able to continue accessing payment

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<sup>77</sup> 'Ukraine Buys Military Gear With Donated Cryptocurrencies' (Bloomberg, 4 March 2020), <https://www.bloomberg.com/news/articles/2022-03-04/ukraine-spends-15-million-of-crypto-donations-on-military-gear>.

<sup>78</sup> The value growth and volatility in bitcoin and ether can be tracked on <https://coinmarketcap.com/currencies/bitcoin/>; <https://coinmarketcap.com/currencies/ethereum/>.

<sup>79</sup> P Katsiampa, *An Empirical Investigation of Volatility Dynamics In The Cryptocurrency Market*, 50 *Research in International Finance and Business* 322 (2020); E Avgouleas and W Blair, 'The Concept of Money in the 4th Industrial Revolution – a Legal and Economic Analysis' (2020) at [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3534701](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3534701) on the shortfalls in cryptocurrency's qualities for money.

<sup>80</sup> *AA v Persons Unknown and Bitfinex* [2019] EWHC 3556 (Comm), also *Ruscoe v Cryptopia Ltd (in Liquidation)* [2020] NZHC 728.

<sup>81</sup> World Bank profile, <https://www.worldbank.org/en/country/ukraine/overview#1>.

<sup>82</sup> Over 60% of the Ukrainian population is banked, [https://www.theglobaleconomy.com/Ukraine/percent\\_people\\_bank\\_accounts/](https://www.theglobaleconomy.com/Ukraine/percent_people_bank_accounts/).

<sup>83</sup> Steven L Schwarcz, *Systemic Risk*, 97 *Geo. L.J.* 193 (2008).

services and even cash.<sup>84</sup> In this manner, 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 and this forms the basis for considering greater welfare catering for 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.<sup>85</sup> Individual conservations of resources are particularly important as the Protection of Refugees Convention<sup>86</sup> and the EU's temporary decision to admit Ukrainian refugees<sup>87</sup> 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 observed to be chequered and limited,<sup>88</sup> and it has been well-observed that the EU lacks a robust and fair refugee settlement policy<sup>89</sup> for previous waves of refugee provision, 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 in due course,<sup>90</sup> and this can be disadvantageous to refugees in a protracted state of displacement.<sup>91</sup> Critics of this strategy observe precarity for refugees in seeking economic opportunities and sustenance<sup>92</sup> and in this light, maximising the conservation of resources seems vital for mitigating the potentially adverse plight of refugees.

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<sup>84</sup> 'International Money Transfer Systems Support Ukraine' (10 March 2022), <https://bank.gov.ua/en/news/all/mijnarodni-sistemi-perekazu-koshtiv-pidtrimuyut-ukrayinu-ta-yivi-gromadyan>.

<sup>85</sup> Theresa S Betancourt, Saida Abdi, Brandon S. Ito, Grace M. Lilienthal and 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 and Ethnic Minority Psychology* 114 (2015).

<sup>86</sup> <https://www.unhcr.org/uk/1951-refugee-convention.html>.

<sup>87</sup> Council Implementing Decision (EU) 2022/382 of 4 March 2022 establishing the existence of a mass influx of displaced persons from Ukraine within the meaning of Article 5 of Directive 2001/55/EC, and having the effect of introducing temporary protection, <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32022D0382&from=EN>.

<sup>88</sup> Nirosha Hewa Wellalage & Stuart Locke, Remittance and Financial Inclusion in Refugee Migrants: Inverse Probability of Treatment Weighting Using the Propensity Score, 52 *Applied Economics* 929 (2020).

<sup>89</sup> Arne Niemann and Natascha Zaun, EU Refugee Policies and Politics in Times of Crisis: Theoretical and Empirical Perspectives, 56 *Journal of Common Market Studies* 3 (2018).

<sup>90</sup> Claudena Skran and Evan Easton-Calabria, Old Concepts Making New History: Refugee Self-reliance, Livelihoods and the 'Refugee Entrepreneur', 33 *Journal of Refugee Studies* 1 (2020).

<sup>91</sup> Evan Easton-Calabria & Naohiko Omata, Panacea for the Refugee Crisis? Rethinking the Promotion of 'Self-Reliance' For Refugees 39 *Third World Quarterly* 1458 (2018); Naohiko Omata, Developing a Better Understanding of Livelihoods, Self-Reliance and Social Networks in Forced Migration Studies in *The Myth of Self-reliance* (Bergahn Books, 2020), 142ff.

<sup>92</sup> Easton Calabria and Omata (2018); Alexandra Embiricos, From Refugee to Entrepreneur? Challenges to Refugee Self-reliance in Berlin, Germany, 33 *Journal of Refugee Studies* 245 (2020); Georgina Ramsay, Humanitarian Exploits: Ordinary Displacement and the Political Economy Of The Global Refugee Regime, 40 *Critique of Anthropology* 3 (2020).

Under a state of martial law,<sup>93</sup> the NBU is entitled to limit the rights of citizens in relation to enforcing their deposit claims on banks. However, the NBU recognizes the needs for citizen welfare and has introduced certain balancing acts.

First, the NBU has injected an unprecedented scale of liquidity into Ukrainian banks<sup>94</sup> and providing an unlimited guarantee to access to cash,<sup>95</sup> but crucially restricting daily withdrawals to 100,000 UAH, which is just over USD\$3,000 per day.<sup>96</sup> The withdrawal of cash abroad is limited to 100,000 UAH a month subject to some exceptions such as paying for college tuition.<sup>97</sup> 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,<sup>98</sup> while suspending all electronic money payments.<sup>99</sup> The latter measure is directed at preventing digital runs, which can take place more swiftly and in a more de-stabilising manner than cash runs, in order to preserve the stability of the banking system. The NBU also strongly encourages citizens to keep cash in Ukrainian accounts in order to fund credit and debit card payments made abroad.<sup>100</sup> 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 catered for by maintaining continuity in payment services, and hence, facilitating citizens' 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, then reintroduced the requirements for proof of source in large cash transfers, subject to the caps above,<sup>101</sup> 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

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<sup>93</sup> Note 3.

<sup>94</sup> 'State of Ukraine's Financial Sector and NBU's Actions to Support Its Uninterrupted Functioning under Martial Law' (3 March 2022), <https://bank.gov.ua/en/news/all/stan-finansovogo-sektoru-ukrayini-ta-zahodi-nbu-z-pidtrimki-yogo-bezperebiynogo-funktsionuvannya-v-umovah-voyennogo-stanu>.

<sup>95</sup> Note 3.

<sup>96</sup> Ibid.

<sup>97</sup> 'NBU Lifts Some Bans on FX Transactions' (2 March 2022), <https://bank.gov.ua/en/news/all/natsionalniy-bank-poslabiv-nizku-zaboron-na-operatsiyi-v-inozemniy-valyuti>, but see amended position 'NBU Raises Limit on Cash Withdrawals from FX Accounts in Ukraine, Clarifies Some Restrictions on Cross-Border Transactions' (21 March 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>.

<sup>98</sup> 'Address by the Governor of the National Bank of Ukraine Kyrylo Shevchenko' (27 Feb 2022), <https://bank.gov.ua/en/news/all/zvernennya-golovi-natsionalnogo-banku-ukrayini-kirila-shevchenka>.

<sup>99</sup> Note 3.

<sup>100</sup> 'NBU Says Those Leaving Ukraine Should Put Their Hryvnia Cash into Accounts Here, Not Take It Abroad' (8 March 2022), <https://bank.gov.ua/en/news/all/natsionalniy-bank-rekomenduye-ne-vivoziti-gotivkovu-grivnyu-za-kordon-a-vnesti-yiyi-na-rahunki-v-ukrayini>.

<sup>101</sup> 'Individuals Must Show Proof of Source as They Move More Than EUR 10,000 in Currency Valuables out of Ukraine' (13 March 2022), <https://bank.gov.ua/en/news/all/gromadyani-mayut-nadavati-pidtvverdni-dokumenty-pri-peremischenni-valyutnih-tsinnostey-za-kordon-u-sumi-scho-perevischuye-10-tis-vevro>.

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 honour the exchange rate fix within a short term of disruption. With protracted war, markets would 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, managing the financing pressures placed on it and maintaining a credible value of the UAH, and providing for citizens' needs. We argue that there are two tasks. The first is the maintenance of payment and settlement continuity, and the second is that the NBU needs to forge a solution with its Eastern European counterparts and also the ECB, on how commercial banks in the EU can support Ukrainian refugees' access to cash, but within limits that mitigate hazards for the Ukrainian banking system. In relation to the second, we also explore how private-led solutions involving cryptocurrency may meet refugees' financial welfare needs, thus comparing public sector-led and private solutions.

### ***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 refers to the NBU's 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.<sup>102</sup> 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 by physical infrastructure relating to internet and network access, as well as data centers and servers that store and keep information secure. As conflict progresses, physical devastation in a number of Ukrainian cities has been reported and hence, it would be imperative for the NBU and Ukrainian banks to ensure that infrastructure for payment and settlement is resilient. Such resilience pertains to functions as well as the secure maintenance of current states of information. Resilience, in relation to critical infrastructure, is defined as 'ability of a system, community or society exposed to hazards to

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<sup>102</sup> 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* (Elsevier 2012), ch1.



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.<sup>103</sup> Resilience is therefore a quality that is beyond merely protecting existing systems as such, but encompasses the quality of adaptiveness in responses<sup>104</sup> to crises and shocks so that functional continuity, robustness and efficient recovery-can be achieved. We suggest that the preservation of critical infrastructure should involve unconventional means of risk dispersion different from peacetime expectations for the maintenance of such infrastructure.

During peacetimes, conventional practice regarding critical financial infrastructure such as the SEP would likely be one of centralization of control under the NBU's provision and oversight, as the responsible entity can be institutionally trusted to ensure the robust functioning of the service as a public good.<sup>105</sup> It is doubted that 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.<sup>106</sup> The centralization or in-housing of important financial service infrastructure in the banking or finance sector is also common in Europe.<sup>107</sup>

Hon and Millard's survey<sup>108</sup> 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. Such practices have likely been shaped by data and financial regulation, the European versions of which have influenced Ukrainian regulation. The European General Data Protection Regulation (GDPR)<sup>109</sup> contains strict risk management rules regarding the handling and use of sensitive personal data, hence transactions implicating such information are likely to be managed by in-house systems.<sup>110</sup> Financial regulation also provides for risk management rules that require banks to be in control of their organizational and governance structures, maintaining a level of adequate supervision over outsourced providers. Hence oversight or supervision obligations become burdensome if any critical infrastructure is outsourced.<sup>111</sup>

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<sup>103</sup> Dan Guo, Ming Shan and Emmanuel Kingsford Owusu, *Resilience Assessment Frameworks of Critical Infrastructures: State-of-the-Art Review*, 11 *Buildings* 464 (2021).

<sup>104</sup> Jon Coaffee & Jonathan Clarke, *Critical Infrastructure Lifelines and the Politics of Anthropocentric Resilience*, 5 *Resilience* 161-181 (2017) DOI: 10.1080/21693293.2016.1241475.

<sup>105</sup> Discussed in Iris H-Y Chiu, *A New Era in Fintech Payment Innovations? A Perspective from the Institutions and Regulation of Payment Systems*, 9 *Law, Innovation and Technology* 190 (2017).

<sup>106</sup> Chiu (2017); Geva (2017).

<sup>107</sup> See note 108 below.

<sup>108</sup> W Kuan Hon and Christopher Millard, 'Use by Banks of Cloud Computing: An Empirical Study' (2016), <https://ssrn.com/abstract=2856431>.

<sup>109</sup> <https://gdpr-info.eu/>.

<sup>110</sup> Ch5, GDPR, <https://gdpr-info.eu/chapter-5/>.

<sup>111</sup> Art 74, European Capital Requirements Directive 2013/36/EU; Art 16, European Markets in Financial Instruments Directive 2014/65/EU. The management of digital risks for the financial sector is expected to be intensively regulated under the EU's Digital Operational Resilience Act, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0595>. Ukraine is keen to be regarded as an equivalent jurisdiction for the EU Internal Market by assimilating similar regulatory frameworks, [https://www.civic-synergy.org.ua/wp-content/uploads/2018/04/INTEGRATING-UKRAINE-INTO-THE-EU-FINANCIAL-SERVICES-MARKET\\_en\\_2019.pdf](https://www.civic-synergy.org.ua/wp-content/uploads/2018/04/INTEGRATING-UKRAINE-INTO-THE-EU-FINANCIAL-SERVICES-MARKET_en_2019.pdf).

This practice of centralization of critical infrastructure may be counter-productive in exigencies such as war, if critical infrastructure is exclusively located or controlled in endangered territories. In this manner, we moot the use of third-party outsourcing for risk dispersion and back-up purposes.

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)<sup>112</sup> now provides incentives for effective outsourcing. 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 different ways that suit each business.<sup>113</sup> The levels of penetration seem more intense in the US than Europe. Commentators in the US have pointed out the use of cloud computing services for holding sensitive customer data, such as in the case of CapitalOne,<sup>114</sup> while the survey on EU practice<sup>115</sup> shows more risk aversion to involving cloud computing for core financial services functions. Cloud computing providers mostly provide 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 outsourser can be managed with greater certainty. The position under DORA would in principle support our unconventional 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 outsourser (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,<sup>116</sup> finding alternatives to support critical infrastructure can be a sound resilience strategy for critical infrastructure.<sup>117</sup>

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<sup>112</sup> European Commission, Proposal for a Regulation of the European Parliament and of the Council on digital operational resilience for the financial sector and amending Regulations (EC) No 1060/2009, (EU) No 648/2012, (EU) No 600/2014 and (EU) No 909/2014, 24 Sep 2020, <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52020PC0595>.

<sup>113</sup> Hon and Millard (2016).

<sup>114</sup> Colleen Baker, David Fratto and Lee Reiners, Banking on the Cloud, 21 Transactions: The Tennessee Journal of Business Law 381 (2020), <https://ssrn.com/abstract=3647392>.

<sup>115</sup> Hon and Millard (2016).

<sup>116</sup> Capital One data breach: Amazon Web Services is backbone for Netflix, NASA and others (USAToday, 30 July 2019), <https://eu.usatoday.com/story/tech/talkingtech/2019/07/30/amazon-aws-unit-says-its-not-responsible-capital-one-data-breach/1868862001/>; discussion risks generally of cloud computing for banks, Sergio Gorjón, BigTechs and Financial Services: Some Challenges, Benefits and Regulatory Responses (Banco de Espana Economic Bulletin 04/2021), <https://ssrn.com/abstract=3960692>.

<sup>117</sup> Guo et al (2012); Adel Mottahedi, Farhang Sereshki, Mohammad Ataei, Ali Nouri Qarahasanlou and Abbas Barabadi, The Resilience of Critical Infrastructure Systems: A Systematic Literature Review, 14 Energies 1571 (2021).

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 sharding and storing data in non-communicating servers.<sup>118</sup> It is also important that the largest and most commercially successful cloud computing service providers' data centres are located in territories<sup>119</sup> not affected by war and are friendly to Ukraine.

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 services 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. It may be argued that 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 the key measure for citizens' financial welfare and such preservation contributes to institutional preservation and national restoration in due course. 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, in order to ensure that third-party service providers are committed. Further, as many reputable cloud computing service providers are BigTech firms based in the US,<sup>120</sup> 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.<sup>121</sup> 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.

### ***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 Visa, Mastercard or Euronet, which operates a large network of ATMs across Eastern Europe, remain committed to processing

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<sup>118</sup> Sabrina De Capitani di Vimercati, Sara Foresti, Pierangela Samarati, 'Protecting Data in Outsourcing Scenarios' in Handbook on securing Cyber-Physical Critical Infrastructure (Elsevier 2012), ch14; Shucheng Yu, Wenjing Lou, Kui Ren, 'Data Security in Cloud Computing' in Handbook on securing Cyber-Physical Critical Infrastructure (Elsevier 2012), ch15.

<sup>119</sup> 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.

<sup>120</sup> 'Cloud infrastructure services vendor market share worldwide from 4th quarter 2017 to 3rd quarter 2021', <https://www.statista.com/statistics/967365/worldwide-cloud-infrastructure-services-market-share-vendor/> on Amazon Web Services, Microsoft Azure and Google controlling about 61% of the global market share for cloud computing services.

<sup>121</sup> The resolution of financially endangered banks has been standardised in Financial Stability Board, Key Attributes of Effective Resolution Regimes for Financial Institutions (2014), <https://www.fsb.org/2014/10/key-attributes-of-effective-resolution-regimes-for-financial-institutions-2/>.

international payments with their Ukrainian counterparts.<sup>122</sup> 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.

*Prima facie*, the private sector payments 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 all other host countries too, in terms of the UK, looking to the Bank of England, and in Euro-area countries, to their national central banks and ECB for a collective Eurosystem policy. However foreign central banks and bank regulators are not able to offer unilateral support without engagement with the NBU,<sup>123</sup> as such support not only pertains to the stability and soundness of foreign banks and payment entities but 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<sup>124</sup> in order to buy back its citizens' UAH exchanged for zlotys in Poland, up to 10 billion UAH and capped at 10,000 UAH per citizen.<sup>125</sup> 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 and withdrawal cap measure provide an extent for citizens' needs, 10,000 UAH is a relatively low amount per citizen for subsistence and welfare. It is envisaged that welfare needs would continue to challenge the NBU and we propose a more open-ended public sector-led solution in the expectation of more welfare demands and uncertain quantum of foreign exchange losses for commercial banks. The NBU should also 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 in two steps: 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 and the ECB.

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<sup>122</sup> Note 84, stating that Euronet allows withdrawals in euros for Ukrainian refugees using their bankcards subject to daily caps and without fees.

<sup>123</sup> Discussed in Will Bateman and Jason Allen, *The Law of Central Bank Reserve Creation*, (2021) MLR (advance access publication); 'EU and ECB struggle to find way to ease Ukraine refugees' cash crunch' (Financial Times, 22 March 2022), <https://www.ft.com/content/00846794-c1d6-418f-84f6-136d3cd2f061>.

<sup>124</sup> 'NBU Signs FX Swap Agreement with Narodowy Bank Polski for USD 1 billion' (22 March 2022), <https://bank.gov.ua/en/news/all/dogovir-iz-natsionalnim-bankom-polschi-pro-valyutniy-svop-na-1-mlrd-dol-ssha-ukladeno>.

<sup>125</sup> 'Ukrainians to Be Able to Exchange Hryvnia Cash in Polish Banks' (22 March 2022), <https://bank.gov.ua/en/news/all/ukrayintsi-zmojut-obminyati-gotivkovu-grivnyu-u-polskih-bankah>.

First, if the NBU swap line and cap are exhausted, we still need to address the question 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 microprudential and capital regulations.<sup>126</sup> 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 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 doing good, and sustaining an affordable path for the NBU and the Ukrainian government.

First, banks continuing to provide for Ukrainian refugees' financial needs should not be penalised by the application of 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 prudentially counted, therefore weakening banks' capital positions during this period of heavy discounting of the UAH's value. It is arguable that UAH should not be counted in banks' trading books as the currency is arguably illiquid at this time.<sup>127</sup> This also avoids the risk-weighting of UAH holdings in relation to market value which is volatile and heavily discounted. Banks would however need to risk-weight UAH in their banking books as illiquid assets. Such risk-weighting may be referenced to the credit risk of their Ukrainian bank counterparts or ultimately to the sovereign where the state-owned Ukrainian banks are concerned.<sup>128</sup> It is likely that the 'normal' application of risk-weighting and microprudential regulation would make it commercially sub-optimal for banks to hold UAH assets.

It is proposed that clarification is needed for the application of bank regulation to UAH assets to address the exigencies of refugee welfare needs. This should be done as a common policy agreed 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.<sup>129</sup> 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 capital 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 microprudential regulatory framework. Microprudential regulation seeks conservative but accurate valuations of risk in order for transparency to be made to regulators and markets, keeping an eye on systemic and market stability. In extraordinary circumstances, systemic or

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<sup>126</sup> Basel Committee, The Basel Framework, [https://www.bis.org/basel\\_framework/](https://www.bis.org/basel_framework/).

<sup>127</sup> See Basel Committee, Risk-based Capital Requirements, RBC 25.3, 25.4, [https://www.bis.org/basel\\_framework/chapter/RBC/25.htm](https://www.bis.org/basel_framework/chapter/RBC/25.htm).

<sup>128</sup> See note 48 on Fitch's downgrading of Ukraine's credit rating.

<sup>129</sup> Council Regulation (EU) No 1024/2013; Article 127(6) of the TFEU.

market stability are more optimally maintained by suspension<sup>130</sup> instead of volatile forms of transparency. This position has been maintained in a range of different ‘financial stress’ situations such as: regulators’ bans on short-selling<sup>131</sup> for securities under extraordinary pressure, or where suspensions of fund redemptions for illiquid assets are introduced because outflow pressures have become extraordinary.<sup>132</sup> These suspensions all intend to provide breather room for return to stability of value. However, in order to prevent such suspension from culminating into an ‘asset’ or ‘market’ shock in due course, there is still a need for a public sector backstop.

Secondly, we suggest that the suspension of microprudential regulation in the manner 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, while crucially deferring any implementation of the backstop, which would put immediate pressure on the NBU’s already stretched mandates. Ultimately it is likely that such a backstop would involve burden-sharing, as 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. Further burden-sharing would be part of a broader mosaic for post-war management, envisaged by economists such as Wolf.<sup>133</sup> Whatever the result of the war, the likelihood that refugee host countries would incur new fiscal burdens is high. The sharing of such burdens appeals to broader values such as democratic states’ comity and commitment to shared values protecting the institutions that matter to democratic states. In this manner, burden-sharing would ultimately involve political commitment and agreement.

We turn to discuss an alternative, bottom-up solution using private cryptocurrency or stablecoins, now mooted<sup>134</sup> as an option, to provide for refugees’ financial welfare. Whether it is citizens protecting their store of value in the face of a perceived unreliable fiat currency such as the Turkish lira,<sup>135</sup> or citizens protecting their store of value from expropriation or exigencies, such as in relation to Afghanistan, Ukraine or Russia,<sup>136</sup> 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

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<sup>130</sup> See general discussion on regulatory suspensions in Chiu, Kokkinis and Miglionico, ‘Relief and Rescue’ (2021).

<sup>131</sup> Arts 20-25, Short-selling Regulation (EU) No 236/2012.

<sup>132</sup> Paras 3.2-3.7, UK Financial Conduct Authority, ‘Illiquid assets and open-ended funds and feedback to Consultation Paper CP18/27’ (Sep 2019), <https://www.fca.org.uk/publication/policy/ps19-24.pdf>.

<sup>133</sup> Martin Wolf, ‘Putin’s war demands a concerted global economic response’ (Financial Times, 23 March 2022), <https://www.ft.com/content/fc9e7fd7-0476-4e37-a135-538aeece5b2>.

<sup>134</sup> ‘Ukrainian refugee flees to Poland with \$2,000 in bitcoin on a USB drive’ (CNBC News, 23 March 2022), <https://www.cnbc.com/2022/03/23/ukrainian-flees-to-poland-with-2000-in-bitcoin-on-usb-drive.html>.

<sup>135</sup> ‘Turks flock to cryptocurrencies in search of stability’ (Financial Times, 23 Jan 2022) on citizens’ response to a 45% depreciation in the national currency, <https://www.ft.com/content/02194361-a5b9-4bf0-9147-f36ba7759cf1>.

<sup>136</sup> ‘War in the time of crypto’ (15 March 2022), <https://www.vox.com/recode/22955381/russia-ukraine-bitcoin-donation-war-crypto>.

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

Policy-makers may be in double minds about refugee access to private cryptocurrency to meet financial protection needs. On the one hand, private cryptocurrency is a form of self-help, and despite the volatility of major cryptocurrencies such as bitcoin or ether,<sup>137</sup> 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. In this manner, 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.<sup>138</sup>

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,<sup>139</sup> and it is already well-documented that money launderers have looked to avenues of transferring private cryptocurrency to evade regulations.<sup>140</sup> During this time, European nations, the US and the UK would be keener to extend stricter anti-money laundering control over crypto-service providers<sup>141</sup> and this may result in the overall erection of more obstacles for refugees to access private cryptocurrency.

We propose that in-principle, the anti-money laundering deterrent to refugees' potential access to cryptocurrency<sup>142</sup> should not be prohibitive if there is no sustained public sector-led policy for refugees' welfare. 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<sup>143</sup> and the European Banking Authority's admonition to national financial regulators to assist Ukrainian refugees' inclusion in mainstream financial systems.<sup>144</sup>

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<sup>137</sup> 'Ether Beats Bitcoin in 2021 as Volatility Suddenly Takes a Bite' (Bloomberg, 29 Dec 2021), <https://www.bloomberg.com/news/articles/2021-12-29/ether-beats-bitcoin-in-2021-as-volatility-suddenly-takes-a-bite>.

<sup>138</sup> See *The Economist* infra note 139.

<sup>139</sup> Note 136 but see 'Sanctions-dodgers hoping to use crypto to evade detection are likely to be disappointed' (The Economist, 19 March 2022), <https://www.economist.com/finance-and-economics/why-crypto-is-unlikely-to-be-useful-for-sanctions-dodgers/21808188>.

<sup>140</sup> 'Crypto money laundering rises 30%, report finds' (BBCNews, 26 Jan 2022), <https://www.bbc.co.uk/news/technology-60072195>.

<sup>141</sup> White House, 'Executive Order on Ensuring Responsible Development of Digital Assets' (9 March 2022), <https://www.whitehouse.gov/briefing-room/presidential-actions/2022/03/09/executive-order-on-ensuring-responsible-development-of-digital-assets/>; UK Economic Crime (Transparency and Enforcement) Act 2022.

<sup>142</sup> Which can be in the form of lack of adequate identification or residential permanency for the purposes of complying with financial institutions' due diligence requirements.

<sup>143</sup> Note 87.

<sup>144</sup> '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' (11 March 2022),

Private cryptocurrency service providers should not be unduly penalised in applying flexible measures for identification and management of money laundering risk in relation to refugees- this is ultimately consistent with a risk-based approach envisaged in the EU.<sup>145</sup> However, given the volatility of private cryptocurrencies and the unregulated nature of stablecoin providers such as Tether, the preference is for refugees to be able to gain financial inclusion in the mainstream regulated financial services sector. A public sector-led solution is also likely to address the problems of scale, consistent action and alleviates the stresses that refugees would suffer in search for self-help, in an already demanding situation for them.

### C. Protecting 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 sector 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 (NSSMC),<sup>146</sup> the Ukraine Stock Exchange<sup>147</sup> and the banking and financial sector 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, and so would be the records held by the NSSMC and Stock Exchange in relation to supervision and oversight of listed companies and financial sector participants. As Berg et al argue,<sup>148</sup> 'The 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.' 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: for example those holding public sector information, evidencing ownership, social and economic rights, economic organisations and activities, the provision of public goods etc.

With digitalization, it is expected that many important records and ledgers would be in digital form, although older records could be in paper form. Physical records suffer from risk

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<https://www.eba.europa.eu/eba-calls-financial-institutions-ensure-compliance-sanctions-against-russia-following-invasion>.

<sup>145</sup> Eg para 2.6, Guideline 2, EBA, Guidelines on money laundering and terrorist financing risk factors (March 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://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).

<sup>146</sup> <https://www.nssmc.gov.ua/en/category/news/>.

<sup>147</sup> <http://www.ux.ua/en/>.

<sup>148</sup> C Berg, S Davidson and J Potts, *Understanding the Blockchain Economy* (Cheltenham: Edward Elgar 2019), ch4.



of loss if there is physical damage to the premises where they are held, while digital records suffer the risk of loss too if physical infrastructure supporting digital storage is attacked or if sophisticated cyber attacks manage to tamper with or lock out digital records. It is queried 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 entail with regard to third-party service providers.<sup>149</sup> The need to maintain adequate oversight of third-party service providers is burdensome, which also makes the case for such record-storing functions to be implemented in-house. However, as suggested in Section B, 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 moot the possibility of not-for-profit assistance by the international network of central banks, of which the NBU is 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. We argue that an international organization, such as the Financial Stability Board (FSB), of whose European Regional Consultative Group the NBU is a member,<sup>150</sup> can act as a ‘peer-level information repository.’ 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 similarly radical 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.<sup>151</sup> Our arguments for the FSB to take on protective roles for one of its members facing an existential threat is arguably proportionate in nature.

There are two considerations to this conceptual possibility. One is institutional in nature, ie whether the FSB may act in this capacity, and 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.

### ***Institutional Basis for Peer-level shared/Back-up Repositories***

The NBU is part of the Financial Stability Board’s Regional Consultative Group for Europe.<sup>152</sup> 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.<sup>153</sup> The Board was re-consolidated as having its own membership and mandate after the global financial crisis 2007-9, as global leaders affirmed the importance of coordinated

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<sup>149</sup> Note 116 for eg.

<sup>150</sup> <https://www.fsb.org/about/rcgs/list-of-members-of-the-fsb-regional-consultative-group-for-europe/>.

<sup>151</sup> ‘United States: Executive Order to Preserve Certain Afghanistan Central Bank Assets for the People of Afghanistan’ (MENA Report 12 Feb 2022), <https://www.proquest.com/trade-journals/united-states-fact-sheet-executive-order/preserve/docview/2628027477/se-2?accountid=14511>.

<sup>152</sup> Ibid.

<sup>153</sup> <https://www.fsb.org/about/history-of-the-fsb/>.

policy, information exchange and actions amongst financial regulators to protect cross-border and global financial stability.<sup>154</sup> We argue that peer central banks to the 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,<sup>155</sup> nor of the FSB's Steering Committee.<sup>156</sup> 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,<sup>157</sup> so it can be questioned whether this extends too to its membership in the FSB's Steering Committee. Even if Russia were suspended from exercising a veto on the FSB's Steering Committee, the next question is that any action taken on the part of the FSB to proactively assist Ukraine could be seen as beyond its mandates. The FSB's mandates<sup>158</sup> 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.

It is arguable that any action the FSB can take with regard to supporting the NBU could only fall within provision (b) or (g). As (g) deals with 'contingency planning', it may be argued that 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 Ukrainian regulated banks is designated as globally systemically important by the FSB.<sup>159</sup>

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<sup>154</sup> Eva Hupkes, The International Financial Cooperation - Recent Reform, 9 ECFR 179 (2012); Daniel E Nolle, Who's in Charge of Fixing the World's Financial System? The Under-Appreciated Lead Role of the G20 and the FSB, 24 Financial Markets, Institutions & Instruments 1 (2015), [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=2547256](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2547256).

<sup>155</sup> [https://www.bis.org/about/member\\_cb.htm](https://www.bis.org/about/member_cb.htm). The BIS has its own legal personality, David J Bederman, The Unique Legal Status of the Bank for International Settlements Comes into Focus 16 Leiden Journal of International Law 787 (2003); and its mandate has evolved from post-war repatriation payments to technocratic coordination for central banks today, 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 (2004).

<sup>156</sup> <https://www.fsb.org/about/organisation-and-governance/members-of-the-steering-committee/>.

<sup>157</sup> 'Bank for International Settlements Suspends russian central bank's Access to BIS Services' (10 March 2022), <https://bank.gov.ua/en/news/all/bank-mijnarodnih-rozrahunkiv-prizupinyaye-dostup-tsentralnogo-banku-rosiyi-do-svoyih-servisiv>.

<sup>158</sup> Charter of the Financial Stability Board (2012), <https://www.fsb.org/wp-content/uploads/FSB-Charter-with-revised-Annex-FINAL.pdf>.

<sup>159</sup> <https://www.fsb.org/wp-content/uploads/P231121.pdf> for the 2021 list.

It can be argued that (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'.<sup>160</sup> Hence, under increasing threats to the continued well-functioning of the Ukrainian banking and financial sector, the exogenous threat to the stability of the Ukrainian system can be regarded as relevant to the group of authorities most closely related to the NBU, which would be 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.

It is arguably preferable for the FSB to take on this role rather than for individual 'friendly' central banks to take on such roles 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<sup>161</sup> have observed crisis-led changes to central bank practices, particularly in relation to expanding facilities for international coordination and cooperation. 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 unlikely face objections. Against this it can be argued that the FSB's mandates should not be read too broadly as it is a highly inter-governmental organization, 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.<sup>162</sup> On balance however, any or multiple bilateral arrangements with friendly central banks may be less convenient or efficient than a coordinated arrangement with the FSB as a network organization. We suggest that the temporary nature of such assistance, on an emergency/necessity basis, can be justified under provision (b) above and mitigate the concerns of mandate stretching.

### ***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 blockchain also maintains a ledger in order to record and make transparent 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

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<sup>160</sup> Aerdt G. F. J. Houben, Jan Kakes, and Garry J. Schinasi, *Toward a Framework for Safeguarding Financial Stability*, 101 IMF E-library 48 (2004), <https://www.elibrary.imf.org/view/journals/001/2004/101/article-A001-en.xml>.

<sup>161</sup> Kahn and Meade (2017).

<sup>162</sup> 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 *Journal of International Relations and Development* 380 (2013). Tim Clark, *The Teleological Turn in the Law of International Organisations*, 70 *International and Comparative Law Quarterly* 533 (2021) discusses restraint on the part of international organisations in extending fields of action.

network.<sup>163</sup> 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.<sup>164</sup> For the NBU's purposes, a permissionless blockchain is unsuitable<sup>165</sup> 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.

First, the NBU and FSB can be connected by a permissioned blockchain protocol,<sup>166</sup> such as Hyperledger Fabric<sup>167</sup> or R3 Corda.<sup>168</sup> Ripple is also a popular permissioned blockchain protocol provider<sup>169</sup> but the design of Ripple has been geared towards peer-to-peer international financial transactions. In this manner, it seems that the former two may be closer to catering for general information-sharing and coordination purposes. These protocol providers can offer tailor-made smart contracts, ie code for automatic deployment of actions upon the fulfilment of predetermined 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 onchain for security reasons. The permissioned blockchain also keeps a transparent and comprehensive trail of actions carried out by either party.<sup>170</sup> 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.<sup>171</sup>

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<sup>163</sup> Kumar Bhaskaran, Peter Ilfrich, Dain Liffman, Christian Vecchiola, Praveen Jayachandran, Apurva Kumar, Fabian Lim, Karthik Nandakumar, Zhengquan Qin, Venkatraman Ramakrishna, Ernie GS Teo and Chan Hui Suen, Double-Blind Consent-Driven Data Sharing on Blockchain (2018), <https://www.researchgate.net/publication/325213815>.

<sup>164</sup> J Bacon, JD Michels, C Millard and J Singh, Blockchain Demystified: a Technical and Legal Introduction to Distributed and Centralized Ledgers, 25 Richmond Journal of Law & Technology 1 (2018); I Lianos, P Hacker, S Eich and G Dimitropoulos (eds), *Regulating Blockchain* (Oxford: OUP 2019) generally.

<sup>165</sup> Karl Wüst and Arthur Gervais, Do You Need a Blockchain? (2017), <https://eprint.iacr.org/2017/375.pdf>.

<sup>166</sup> Anna Donovan, (Shadow) Banking on the Blockchain: Permissioned Ledgers, Interoperability and Common Standards in Iris H-Y Chiu and Iain G MacNeil (eds), *Research Handbook on Shadow Banking* (Cheltenham: Edward Elgar 2018), ch 11.

<sup>167</sup> Bhaskaran et al (2018).

<sup>168</sup> Pablo Garcia Bringas, Iker Pastor-López and Giuseppe Psaila, Blockchain Platforms in Financial Services: Current Perspective, 11 Business Systems Research 110 (2020) at 117.

<sup>169</sup> Lissa L Broome, Banking on Blockchain, 21 North Carolina Journal of Law and Technology 169 (2019); Michael T Rosner and Andrew Kang, Understanding and Regulating Twenty-First Century Payment Systems: The Ripple Case Study, 114 Michigan Law Review 649 (2016).

<sup>170</sup> Gengrui Zhang and Chengzhong Xu, An Efficient Consensus Protocol for Real-Time Permissioned Blockchains Under Non-Byzantine Conditions, in Shijian Li (ed), *Green, Pervasive and Cloud Computing* (13th International Conference, GPC 2018, Hangzhou, China, May 11-13, 2018, Revised Selected Papers, Springer, 2019).

<sup>171</sup> Bhaskaran et al (2018). Also see discussion regarding transfer of sensitive medical information via permissioned blockchain protocols such as Hyperledger Fabric, Tiago Guimarães, Ailton Moreira, Hugo Peixoto and Manuel Santos, ICU Data Management - A Permissioned Blockchain Approach, 177 *Procedia Computer Science* 146.

Permissioned blockchain protocol providers are for-profit in nature but we urge that these services should be provided without opportunism if approached. The success of these services to provide for Ukraine's hour of need can mobilise 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, it is encouraged that usual public procurement processes be expedited in the interests of emergency. This would raise competition concerns under peacetime conditions but it may be a necessary tradeoff if needs become urgent.

#### **D. Conclusion**

This essay explores the important and multifaceted roles of a central bank in extraordinary times of crisis such as war. Although martial law may be imposed, yet 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 preservation 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 time of war, is at the heart of difficult and conflicting choices in three respects, i.e. providing war finance, preserving banking and financial systemic stability and catering for citizens' financial welfare. These difficult choices in turn raise the need for the central bank to ensure its own institutional preservation and continuity in order to cater 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, in relation to 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 essay centers on the war in Ukraine, the insights for central banks' objectives, options and institutional preservation may be useful for other institutions if faced with similar situations.