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Calculation of GNP as a Source of Income

Abstract:

The relevance of the topic is manifested by ongoing negotiations between Ukraine and foreign creditors on the issue of debt restructuring, accompanied by the law, adopted on July 18, 2024, by Ukraine's parliament, allowing the government to suspend foreign debt payments, like by numerous continuous lawsuits against the government of Argentina: in both cases, GDP-linked warrants in general, and GDP calculation, in particular, are the subject matter. With objective limitations of GDP as a measure of economic development being discussed in numerous scientific papers, starting from the author of the concept of GDP Simon Kuznets, this study focuses on the cases of intentional manipulation of data to prevent (or diminish) losses or gain profit. The study aims to research political (as distinct from methodological) approaches to the design of state-contingent debt instruments and risks associated with GDP miscalculation on the example of two case studies (circulation of Argentinian and Ukrainian GDP-linked warrants). The purpose is realized through the application of general scientific and specialized methods. Historical research and comparative analysis were applied to identify similarities and differences in background, terms, and conditions of GDP-linked warrants, issued by the governments of Argentina and Ukraine. Case studies were undertaken to examine the problems connected with their emission and circulation. Qualitative analysis techniques were used to identify problems facing both issuers and holders of warrants. Prima facie until now there are no publications on the topic. As primary sources in most cases are unavailable (due to the confidential character of negotiations), the research was based on the experts' opinions on some occasions. The paper seems to be of interest to investors who have already bought or are planning to buy GDP-linked warrants like the Global Sovereign Debt Roundtable participants. It should also appeal to international financial institutions, substantiating the pressing need to develop a standardized term sheet for the emission of value recovery instruments.

Keywords: GNP-linked warrants, state-contingent debt instruments, value recovery instruments, sovereign debt restructuring, term sheet.

Abbreviations:

GDP is Gross Domestic Product,

SCDI is State-Contingent Debt Instruments,

VRI is Value Recovery Instruments.

Introduction

GDP is a key macroeconomic indicator that measures a country's economic output.

The OECD defines GDP as an aggregate measure of production equal to the sum of the gross values added of all resident institutional units engaged in production. In 1944, as a result of the decisions of the Bretton Woods Conference, GDP became the main index for measuring a country's economy and at present the growth rate of real GDP is traditionally used as a basic indicator of the general state of the economy.

Irrespective of the approach used for GDP calculation (Production or Income or Expenditure) a great number of eminent economists criticize this indicator, starting from Simon Kuznets, who was the first to introduce the concept of GDP in 1934. Thereafter this concept was criticized by ecologists, who claimed that it ignores the impact of production growth on the environment, sociologists, who pointed to its inability to measure the quality of life, politicians, focusing on its disregard of freedom of political choice and the level of public safety, and economists, dissatisfied with the methods of GDP calculation. The latest publications on the topic were authorized by Galvão and Mitchell (2019) and Grishin et al. (2019). This paper draws attention to the attempts of intentional miscalculations of GDP to gain profit or avoid losses in operations on the global financial market. The volume of the assumed potential gains/losses exceeds dozens of billions of US dollars. Ongoing lawsuits in Argentina and hard ongoing negotiations between Ukraine and its creditors on the issue of linked to GDP securities preordain the topic's relevance.

The object of the research is the terms and conditions of the emission of GDP-linked warrants by the two biggest IMF borrowers—Argentina and Ukraine. The aim of the article is to analyze known facts of intentional manipulation (or attempt of it) of the macroeconomic statistics and identify risks connected with such manipulations for holders and issuers of GDP-linked warrants, as well as for the global capital market.

To do this the paper is divided into three parts, each performing one of the following tasks:

- outline the economic essence, types, advantages, and disadvantages of the emission of the Value Recovery instruments in general and GDP-linked warrants—in particular;
- explore controversy between government of Argentina and holders of Argentinian GDP-linked warrant;
- analyze terms and conditions of the Ukrainian GDP-linked warrants and attempts to manipulate data while calculating payoffs.

To the best of the author's knowledge until now there are no publications on this topic.

The research aim was realized through the application of general scientific and specialized methods. Historical research and comparative analysis were applied to identify similarities and differences in background, terms, and conditions of GDP-linked warrants, issued by the governments of Argentina and Ukraine. Case studies were undertaken to examine the problems connected with their circulation. Qualitative analysis techniques were used to identify problems facing both issuers and holders of warrants.

The issues discussed in the paper seem to be of practical usefulness for both the emitters and holders of GDP-linked warrants. To Global Sovereign Debt Roundtable and international

financial institutions discussed conceptual and, in particular, practical issues of the emission and circulation of the Value recovery instruments may provide an incentive to develop a standardized Term sheet for the emission of such instruments.

Results

Economic Sense of Manipulation of GDP Calculation

To understand the mechanics of profit-making of GDP calculation's manipulation it is necessary to explore the economic essence of GDP-linked warrants as a particular case of the entire category of Sovereign SCDI, and, as a particular case, VRIs. The slight difference between the two categories—mechanics of payment (fluctuating according to the agreed metrics for SCDI, and made only when specific thresholds are met for VRI)—for this research is not taken into consideration.

In 2017 IMF presented its definition of Sovereign state-contingent debt instruments: “SCDI are instruments that (i) bear contractual debt service obligations tied to a pre-defined state variable and (ii) are designed to alleviate pressure on sovereign indebtedness and/or financing needs in a bad state of the world” (*State-contingent...*, 2017).

The idea behind SCDIs is that by linking debt service to a measure of the sovereign's capacity to pay, such financial instruments can increase fiscal space, allowing sovereign debtors certain policy flexibility in times of distress. SCDIs are designed to provide creditors a chance to recoup some portion of the financial sacrifice they are enduring in the debt restructuring to make that future prosperity possible. In theory, they are designed to expand the sovereign's investor base, open opportunities for risk diversification for holders, and build up the resilience of the international financial system.

Among the best-known advocates of the use of SCDIs in general and GDP-linked securities—in particular, the most famous are Robert J. Shiller (2018), who saw them as a way to help countries manage their debt burden more effectively, Eduardo Borensztein and Paolo Mauro (2002), who proved that GDP-indexed bonds could provide centurial benefits in reducing the likelihood of default crises and allowing countries to avoid pro-cyclical fiscal policies, John Williamson (2017), Joseph Stiglitz and many others who pointed to the potential benefits of GDP-linked instruments in sovereign debt restructuring.

The group of experts from the Bank for International Settlements (Deniz Igan), IMF (Taehoon Kim), and Massachusetts Institute of Technology (Antoine Levy) proposed their understanding of the difference between SCDIs and plain vanilla bonds in terms of their pricing and volatility (Igan, 2022) while Charles Cohen et al. discussed the Role of State-Contingent Debt Instruments in Sovereign Debt Restructurings, pointing that in the period of great macroeconomic uncertainty, VRIs could play an important role in facilitating speedier and less-costly sovereign debt restructurings by tying the payments of restructured debt contracts to future outcomes (Cohen et al., 2020). The author of the latest publication Maziar Peihani answers the question “Can SCDI be the answer to sovereign debt crises?” (Peihani, 2024).

Sovereign state-contingent debt instruments, receiving their definition and theoretical substantiation less than half of a century ago, actually have been used for centuries. The State of Virginia, for example, in 1782 issued bonds linked to the price of land and slaves; in 1922 Soviet

Union started to issue “Bread Bonds” to be redeemed in grain, and in 1923 “Sugar Bonds” were emitted.

Nowadays SCDIs are presented in a wide variety of forms, but broadly they can be divided into two main categories:

- Instruments featuring continuous adjustment of debt service payments that provide only upside payouts to creditors under positive scenarios. These value recovery instruments (VRIs) are strongly correlated with the borrower’s ability to pay. Upside payouts are usually delayed into the future, and these instruments can typically be traded separately from the renegotiated debt securities.
- Instruments involving discrete adjustment, that provide downside protection to sovereign borrowers under negative scenarios. Typically, such sovereign debt instruments (also called Sovereign Sontingent Convertible Debt—S-CoCo) with a built-in trigger to allow a standstill of payments function like insurance contracts by providing relief to borrowers (either in the forms of interest forbearance, maturity extensions, or principal forgiveness) following large negative shocks, such as natural disasters ([Cohen, 2020](#)). One of the examples is the 2015 Grenada bond “hurricane clause,” where a one-off debt service deferral is triggered by a pre-defined event, in this case, a hurricane of the given intensity, verified by the Caribbean Catastrophe Risk Insurance Facility. This type of SCDIs is not the subject of the study.

Value recovery instruments related to the first category can be issued both by sovereign and by business entities.

State-contingent debt instruments can be linked to different benchmarks. At first, they were linked predominately to commodity prices. The use of commodity-indexed bonds dates as far back as 1863, when the Confederate States of America issued “cotton” bonds, either payable in pounds or francs or convertible into cotton at a predetermined price.

The most frequently used commodity for SCDIs issuing was and still is gold. The French government, for example, issued 1973 Gold bonds (“Giscard”) that carried a 7% nominal coupon rate and a redemption value indexed to the price of one-kilogram bar of gold. As a result of the annulment of the linkage of currencies to gold in 1978, the bonds increased in value by about 700% over 10 years ([Atta-Mensah, 2021](#)). India issued gold bonds in 2015, with the principal linked to the price of gold.

The oil settles for the second place among commodities to be linked with debt securities: oil-linked securities were issued by Algeria, Nigeria, Venezuela, and Mexico—the latter believed to have been the first to issue such bonds. Mexican “Petrobonds” in particular, were issued on behalf of the government by the National Financiere S.A.—a development bank owned by the Mexican government. Each 1,000-peso bond was linked to 1.95354 barrels of oil. On the maturity date (in three years) the Petrobonds were redeemed at a value equal to the maximum of the face value or the market value of the referenced units of oil plus all coupons accrued during circulation of the bonds.

The most unusual commodity-indexed warrants were issued in 1981 by Cominco Ltd. of Canada: holders of this security had the right to exchange each warrant on or before August 1992 for several common shares of the corporation, based on the average market price of zinc or copper and the market value of common stocks on the exercise date ([Atta-Mensah, 2021](#)).

Alongside commodities, in some cases SCDIs were linked to particular macroeconomic indices. It could be nominal wages (Uruguay issuing 2014 bonds with principal and coupon payments indexed to it), inflation (linked by the USA, United Kingdom, France, Germany, Japan, Sweden, India, Israel and many other countries), or revenue. The most frequently used reference variable is GDP, as it meets some significant qualifying requirements, being regularly published, widely understood, and comparable across countries.

Currently, SCDIs based on macroeconomic indices embrace two types of financial instruments: bonds and warrants. GDP-linked bonds can be further divided into three types, conditional on payout deferral type: GDP-linked bonds can be designed either linking principal to GDP, coupon, or both principal and interest.

While GDP-linked bonds can be issued at any time by any sovereign in need of funding, GDP-linked warrants are usually issued in the process of debt restructuring as a means of a “haircut”: holders of old debt securities agree to recover some part of debt only if the debtor country’s economy improves beyond certain benchmarks.

The process of the emission and the Terms and conditions of GDP-linked bonds is the focal point of both academicians and moneymen. Experts from the IMF, World Bank, Universities, and research institutions, such as the London School of Economics (LSE), Brookings Institution, and Centre for Economic Policy Research (CEPR) are conducting studies and publishing papers on the topic, while top officials discuss GDP-linked bonds at the meetings of G20, G7 Groups and UNCTAD.

In 2015 the meeting of economists, lawyers, and businessmen resulted in the compilation of “The London Term Sheet”—Indicative Term sheet for the fictitious sovereign republic of Arcadia. It included the design of a payment structure, a consistent set of terms and conditions, simplifying the issuance process, and making the bonds more attractive to investors by reducing complexity and uncertainty, triggers, and formulas, like legal and regulatory considerations while issuing GDP-linked bonds. As of now, the London Term Sheet is a recommended framework. Despite being endorsed by various financial experts, policymakers, and international organizations as a valuable tool for improving debt sustainability and financial stability, its actual adoption varies by country and issuance.

Compared with the regulation of the emission of GDP-linked bonds, the situation with GDP-linked warrants is even worse: there is no standardized framework designed to facilitate the issuance of warrants linked to the GDP of the issuing country. The IMF while addressing the concept and guidelines for GDP-linked warrants in its publications and working papers, focuses on “Economic and market perspectives”, “Benefits and Challenges”, and “The Role of State-Contingent Debt Instruments in Sovereign Debt Restructurings” without developing a definitive guideline for the terms and conditions of GDP-linked warrants design.

Summarizing theoretical issues of the GDP-linked warrants emission, it is possible to identify their main mandatory components:

Structure and Design:

- *Payment Formula*—linking payments to the issuing country’s GDP growth or level. The formula specifies how payments will increase with higher GDP growth and decrease with lower growth;

- *Maturity and Duration*—ensuring alignment of warrants with the country’s economic recovery timeline and debt management strategy;
- *Caps and Floors*—enabling issuers’ risk management.

Data and Verification:

- *GDP metrics* to be used, including the source of GDP data (e.g., national statistical offices, international organizations) and the frequency of measurement (e.g., annual, quarterly).
- *Verification Mechanisms:* Procedures for verifying GDP data, including potential third-party audits or validation mechanisms to ensure accuracy and transparency.

Legal and Regulatory Framework:

- *Jurisdiction* governing the warrants and the applicable laws;
- *Dispute Resolution:* Provisions for resolving disputes related to GDP measurements, payments, or other terms of the warrants, often through arbitration or international courts.

Transparency and Disclosure:

- *Regular Reporting* of GDP performance, payment calculations, and payments to investors;
- *Disclosure of Risks* associated with GDP-linked warrants, including economic, political, and data reliability risks.

In the next chapters, the actual compliance of some already circulating GDP-linked warrants to the listed requirements is briefly analyzed.

Case Study: Argentinian GDP-Linked wWarrants

In the 21st century, Argentina has defaulted three times—in 2001 (during a very serious financial crisis), in 2014 (in the middle of a legal battle against holdout creditors), and in 2020 (at the height of the COVID-19 pandemic). Following the first default in 2005 in the course of restructuring its external debt (93 billion dollars US), Argentina issued longer-term par, quasi-par, and discount bonds with a much lower nominal value (25-35% of the original). The debt restructuring included GDP-linked units (or warrants), being attached to every restructured Argentinian bond. They were designed to be detached from the underlying bonds 180 days after the issue date so that they would have their trading price after that. Thus, in essence, the Argentine warrant could be classified as a detachable option and had to be traded separately.

A second issuance occurred in 2010 during the second phase of debt restructuring. This issuance was similar to the 2005 warrants, offering bondholders the potential for additional payments tied to Argentina’s GDP performance. Both emissions of GDP-linked warrants were intended to align the interests of the bondholders with the economic performance of Argentina, providing an incentive for investors to support the country’s economic recovery.

The notional value of the GDP-linked securities, with a maturity of 30 years, was 62 billion dollars US (76% of the 82 billion dollars US of eligible debt). They were issued in three different currencies—Argentinian Pesos, Euros, and US dollars—as the new bonds, and were governed by the same law as the new bonds to which they were initially attached (Warren-Rodriguez and Conceição, 2015). These warrants had no principal and instead acted as a series of standalone, state-contingent coupons.

Argentinian GDP-linked warrants’ payments were conditioned by the three criteria stipulating repayment:

- *a level condition*: actual real GDP must exceed baseline real GDP (the base case GDP, measured in 1993 pesos);
- *a growth condition*: growth of actual real GDP must exceed growth of baseline real GDP;
- *a cap*: the cumulative amount of all payments should not exceed 0.48 per security unit (in its corresponding currency). The total cap on payments has been set at 29.8 billion dollars US. The warrants were not callable, meaning that even if the Argentine Government bought back the debt, it still had to serve the warrant.

The payment was designed to equal a fraction of excess nominal GDP to be distributed among the units of notional GDP-linked securities. With all conditions met, the Government had to pay investors based on the following components of the Payment formula:

- (1) Notional Amount: the face value of the underlying restructured bonds to which the GDP warrant is attached, specified in the issuance documents;
- (2) Payment Rate: fixed percentage specified in the warrant terms. The rate would have been 5% if participation in the debt exchange had been 100%; since in 2005 participation was 76%, the fraction is 76% of 5%, i.e., 3.8%;
- (3) Excess GDP Growth: the amount by which Argentina's actual GDP growth exceeds a pre-defined threshold. For the 2005 warrants, the threshold GDP growth rate was set at 3% real GDP growth annually;
- (4) Trigger Payment Condition: Payments were to be made only if Argentina's real GDP growth exceeded the 3% threshold in any given year; usually they were made in the same currency as the underlying bond;
- (5) Base GDP level: typically, the GDP level at the end of 2004, is used as a benchmark.

Payment formula:

$$\text{Payment} = \text{Notional Amount} \times \text{Payment Rate} \times \\ \times [(\text{Actual Real GDP} - \text{Base GDP}) / \text{Base GDP}]$$

In 2006 researchers of the United Nations Department of Economic and Social Affairs Stephany Griffith-Jones and Krishnan Sharma concluded, that “to the extent that the instrument of GDP-linked bonds is a desirable financial innovation, of benefit to debtors and creditors, Argentina would have done the international community a favor by issuing these warrants and servicing them” (*Griffith-Jones & Sharma, 2006*).

Investors at the time of the emission were confused about how to value the warrants, partly owing to complex and ambiguous rules about exactly when they would pay out. At the time of their emission, the price of the securities was about two dollars US per 100 dollars US of notional value. In the following years, the market price of the Argentine GDP-linked securities sometimes skyrocketed to 19 dollars US (*Aurelis, 2021*) before falling to 0.38 dollars US in 2020; the average price was calculated to be 7.37 dollars US referencing the notional of 100 (*Cohen, 2020*).

During the first 2 years after the restructuring investors netted record yields due to renewed growth of the economy (8–9% per year). However, since then, the rates of growth in Argentina varied greatly—from negative 5,9% in 2009 to positive 10,25% in 2010.

The first payment was made in December 2006, based on the economic performance of 2005. Subsequent payments were made annually when the conditions were met. Significant payments occurred in the early 2010s after Argentina experienced robust economic growth. For instance, in December 2012, Argentina made a substantial payment of about 3.5 billion dollars

US (more than 30 percent of the total servicing of interest on public sector debt in that year), reflecting strong GDP growth in 2011. Since 2005 and up to 2012, investors have received six payments totaling 18 cents per warrant (on the dollar) as the Argentine economy boomed (*Voris, 2019*).

In total, during nine years after the emission of warrants, Argentina has paid them roughly 10.5 billion dollars US. The warrants can pay a maximum of 48 cents until they mature in 2035.

Since 2012, the GDP warrants haven't delivered a penny to investors and, in the opinion of experts, aren't expected to anytime soon (*Aurelius, 2021*), as a long chain of lawsuits started.

The key issue of the legal battles between investors (predominately foreign hedge funds) and Argentina is the contractual interpretation of bond documentation. The main matter of dispute turned out to be "base year": in March 2014 then-president Cristina Fernandez de Kirchner ordered the National Statistics and Censuses Institute to replace its calculation of real GDP in constant 1993 prices and base it in constant 2004 prices, thus making the relevant data no longer available.

The change of the base year for the data from 1993 (metric agreed by the parties on the contractual documents) to 2004 in the view of the plaintiff's reduced growth in 2013 to three percent – almost half the previously forecast pace.

The first major lawsuit against Argentina regarding GDP-linked warrants was initiated by the specializing in distressed debt American hedge fund Aurelius Capital Management – the same fund that was intensively acquiring Ukrainian debt securities on the eve of their restructuring in 2015 and later refused participation in Ukrainian sovereign debt restructuring.

This hedge fund, that has previously settled a massive litigation over defaulted 2001 bonds with Argentina in 2016, sued the country again in 2019, attempting to force the government of Argentina to pay 1.3 billion dollars US, having claimed that Argentina should have incorporated 1993 data into its base calculation of real GDP expansion (*Aurelius Capital Master Ltd. v. the Republic of Argentina*, No. 1:2019cv00351, U.S. District Court, Southern District of New York, Manhattan). The claimant argued that Argentina's switch to 2004 prices for the reference year and its decision not to publish GDP data in 1993 prices was improper, irrational, arbitrary, and capricious (*Klein, 2019*).

The hedge fund stated that Argentina's government had altered the methodology for calculating GDP without proper disclosure or justification; the manipulation of data, as was stated by the fund, included changing the base year and adjusting growth figures, which resulted in reported GDP growth rates that were below the threshold required for payments to warrant holders. The hedge fund's lawyers declared that Argentina's adjustments in GDP calculation methods were intentionally done to prevent these thresholds from being met, thereby avoiding the payments. In the court, they sought to compel Argentina to make the payments that would have been due under the original terms of the warrants. The funds lawyers argued that the changes deprived its funds of about 172 million dollars US in payments and, with interest, Argentina owed more than 253 million dollars US (*Aurelius, 2021*).

Argentina argued that its interpretation enables Base Case GDP to be updated in such a way that the securities were linked to the real economic performance of the Republic as measured by the most reliable estimate of GDP available, rather than being compared to an obsolete measure – 1993 prices. Argentina branded the fund as a "vulture" for its stance.

In the abovementioned case, the US federal court ruled in favor of Aurelius Capital Master Ltd., acknowledging that the Republic of Argentina had breached certain bond agreements. The court compelled Argentina to reveal the methodology it used to measure economic activity in 2013 and awarded Aurelius Capital monetary damages as compensation for the breach.

The lawsuit by Aurelius set the stage for other subsequent legal actions by investors in Argentine GDP-linked warrants.

The same Aurelius Capital, together with some other holders of Argentina's contingent 2005 and 2010 GDP-linked warrants and trustee Bank of New York Mellon on December 13, 2023, filed a new action to recover up to 6 billion dollars US in unpaid amounts due under the GDP warrants for reference years after 2013. According to the complaint in the Southern District of New York, Argentina acted "willfully and in bad faith, with full knowledge that it was not following the plain terms of the Global Securities and that its conduct would have the effect of destroying Holders' right to payment" (*Litigation, 2023*).

In total in 2023 there were six litigations of beneficial holders of GDP warrants versus Argentina pending before Southern District of New York court. In all of them, every individual Holder was seeking a portion of any Payment Amounts due for Reference Years after 2013 (including but not limited to 2015, 2017, 2018, 2021, and 2022) representing that Individual Holder's beneficial interest.

In a decision made public in April 2024, U.S. District Judge Loretta Preska in Manhattan dismissed all their claims stating that the hedge funds had no right to sue because they failed to meet five preconditions required under "no-action" clauses in its bond agreements (*Argentina beats..., 2024*).

Another process in regard of the same problem was initiated by Palladian Partners LP, HBK Master Fund LP, Hirsh Group LLC, and Virtual Emerald International Limited in England and Wales High Court. That court on April 5, 2023, ordered payment of 643 million euros in respect of the claimants' holdings and 1.33 billion euros in respect of all the bonds for the year 2013, and specific performance for subsequent years of the Republic's obligations according to the correct approach to adjusting the Base Case. The judge required the Republic to apply the Annual Adjustment Construction in all subsequent years in determining whether it is obliged to pay under the bonds. Given that the Republic has not measured GDP in 1993 prices since 2013, this will require the Republic to restart the production of data in 1993 prices and to continue producing it until the maturity of the bonds in 2035 (*England & Wales, 2023*).

To summarize, it must be pointed out that in some cases, the disputes between holders of GDP-linked warrants and Argentina led to settlements between Argentina and the plaintiffs. Details of settlements are often confidential, but they typically involve Argentina agreeing to make certain payments or adjustments in future GDP calculations. However, not a single penny was officially paid to the holders of Argentinian warrants for the last decade.

The problem of appropriate calculation of GDP and GDP growth rate, like the possibility of data manipulation by sovereign debtors, is still topical, and far from being solved, as demonstrated by contrarian decisions of different courts. The lawsuits against Argentina over GDP-linked warrants with significant financial stakes for the investors involved, highlighted the complexities and risks associated with calculation and verification of GDP.

Case Study: Ukrainian GDP-Linked Warrants

Comprehension of the of GDP data manipulation in case of Ukrainian VRI necessitates preceding familiarization with the characters engaged in the process of their design.

The negotiations on the restructuration of the Ukrainian Eurobond started in 2015, following Russia's annexation of Crimea, the Russian-backed separatist movement in the east of the country, and the shrinkage of foreign reserves on waging the war that has destroyed its industrial export and coal mining capacity in the Donbas. Facing the real threat of default Ukrainian government was under compulsion to start negotiations with Eurobond holders.

While Ukraine's finance minister Natalia Yaresko was seeking restructuring of Ukraine's foreign debt by way of cutting the interest it pays, extending the debt's maturities, and writing down the principal in a "haircut" (up to 40% of the debt's value), the creditors were toughly opposed to debt relief, being ready only to postpone payouts in return for extra compensation. Creditors had an upper hand in talks due to the concentration of Ukrainian bonds (up to 7 billion dollars US) at the portfolio of an American investment fund Franklin Templeton, acting as a leader of the specially formed ad hoc committee of holders of Ukrainian bonds. The committee was composed of representatives of American funds TCW and T. Rowe Price and a Brazilian fund BTG Pactual Europe (Aurelius Capital Management excluding). The businesses grouped in the "committee of creditors" in total held Ukrainian bonds worth approximately 8.9 billion dollars US, of the 18 billion dollars US being restructured. Private creditors (including other American funds—such as PIMCO (owned by Germany's Allianz), Blackrock, Fidelity, and Stone Harbor (*Sadowski, 2015*), claimed that Ukraine's problem is solvency, not the volume of its debt. All declared that they would not accept a haircut.

The ad hoc creditors' committee has hired, among others, Weil Gotshal & Manges (with senior partner and co-head of restructuring Andrew Wilkinson, leading a team of lawyers across London and New York offices) as advisor.

As a result of the very hard negotiation, extremely unfavourable provisions were imposed on Ukraine: in exchange for the deferral of the debt service and extension of payment maturities interest rate was raised to 7.75% and instead of "haircut" 20% of old bonds was reissued in the form of GDP-linked warrants. The de facto issue of the latter was approximately 3,607 billion dollars US.

Terms and conditions of GDP-linked warrants in comparison with similar Argentinian securities were extremely profitable for their holders:

- They were scheduled to receive payment equal to 15% of the real GDP growth exceeding 3%; and if real GDP growth exceeds 4%—payment had to be equal to 40% of the growth beyond 4 percent. An additional precondition ensuring their profits was extremely low threshold, which gives the kick for GDP-indexed payments—125 billion dollars US. During the seven years preceding the restructuring GDP of Ukraine was below this threshold only once—in 2009 (117,08 billion dollars US), while in 2008 it exceeded 181 billion dollars US.
- While Argentine warrants have a total payment cap equal to 48 percent of the warrant's face value, Ukrainian payments have no cap at all for the last 15 years (starting from 2026).

Co-authors of IMF Staff Discussion Notes "The Role of State-Contingent Debt Instruments in Sovereign Debt Restructurings" (*2020*) Charles Cohen, S. Ali Abbas, Myrvin Anthony, Tom Best, Peter Breuer, Hui Miao, Alla Myrvoda, and Eriko Togo pointed that

Ukraine's 2015 warrants could end up paying out significantly more than the initial creditor haircut... The essentially uncapped nature of Ukraine GNP-linked warrants could potentially result in large fiscal costs far exceeding initial debt relief" ([Coben, 2020](#)). Just before that conclusion experts of Investment Capital Ukraine LLC presented their estimation of the deal, according to which the possible total amount of payments on warrants (with maximum notional value—3,6 billion dollars US) in a scenario of stable growth of 4% will be 5,34 billion dollars US; in case of 5% growth—23,27 billion dollars US, 6% – 46,42 billion dollars US and 7%—76,78 billion dollars US ([Kotorych, 2015](#)). Calculations, performed in 2022 (during the war, resulting in a sharp decline of the Ukrainian economy), envisage the possibility of annual payment for GDP warrants over 6 billion dollars US in case of a GDP growth rate exceeding 10%, which is very realistic because of the low base ([Bublyk, 2022](#)).

Factual first payments for Ukrainian GDP-linked warrants (UKRAINE 15/41 IO GDP-LKD) took place in 2021. The price for these securities skyrocketed from 49.6 dollars US (Initial price after offering) to 111.01 dollars US in June 2021—referencing the notional of 100 ([DL-FLR..., 2024](#)).

In 2022, Russia's full-scale invasion of Ukraine spurred the new wave of negotiations on the restructuration of issued in 2015 Eurobond-like GDP-linked warrants.

On August 10, 2022, the negotiations were completed with the successful amendment of all of Ukraine's sovereign Eurobonds and GDP warrants, like state-guaranteed Eurobonds. Holders of around 75% of the aggregate principal sum of Ukraine's 13 Eurobond series outstanding like holders of approximately 90% of the notional amount of GDP warrants voted in favor of amending the conditions of the securities (Investors Supported, 2022). As the result of the negotiations, completed on August 10, 2022, all the payments (including consent payment of 50 dollars US for each 1,000 dollars US in the Notional number of securities, on which interest will also accrue) were deferred until 1 August, 2024, with interest accruing at a rate of 7.75 percent per annum. The successful consent, as Ministry of Finance of Ukraine declared, was a testament to investors' willingness to support Ukraine and mitigate a potential high burden of the instrument for Ukraine's economy during the post-war growth period.

As it was agreed in 2022, after the end of the grace period, the Ukrainian government would have to pay (or capitalize) about 4.0 billion dollars US of delayed coupons.

In 2024, with the devastating war going on, a new round of talk on a new restructuring has started. As of summer 2024, Ukraine has 19.7 billion dollars US outstanding on its international bonds and owes 2.6 billion dollars US on GDP warrants. On June 17, 2024, it was announced that Ukraine has not been able to reach an agreement with a group of bondholders over restructuring during formal talks. On July 18, Ukraine's parliament passed a law allowing the government to suspend foreign debt payments.

With the news from negotiations and preparations for them being strictly confidential, it seems a sensible reason to quote the statement of Andrew Wilkinson—the legal advisor of the ad hoc creditors' committees from Weil Gotshal & Manges in 2015, 2022, and 2024.

In a webinar ([Reorg, 2022](#)), which was broadcast just weeks before Russia invaded Ukraine, on February 4, 2022, Andrew Wilkinson, Senior Partner and Co-Head of Restructuring at an American international law firm Weil Gotshal, discussed which implications of the geopolitical crisis in Ukraine was having on the country's credit market and how investors could mitigate

those new risks. His opinion is all the more significant given that he was and still is leading the team advising the Creditors' Committees in the negotiations with Ukrainian on the Eurobonds and GDP-linked warrants.

In the course of the webinar (just 20 days before Russia's full-scale invasion), Mr. Wilkinson mentioned "a very successful" debt restructuring in which he actively participated in 2015 and discussed three possible scenarios of the future development of events:

- escalation of what happened in Donbas and Crimea in 2014 and shrinking of the territory under the control of Ukraine;
- Russia's invasion of Ukraine (full-scale war with Russia's victory and establishment of successor state);
- Status quo – slow destabilization of Ukraine. After this, the leading legal advisor of the committee of Ukrainian GDP-linked warrants explained, what was going to happen in case of Donbas annexation and Ukraine losing further 10% of its territory the following year: "Ukraine will be required to produce its GDP numbers on its reduced by 10% territory and then to show whether the required GDP growth had occurred, take out the territory over which it has lost control and produce numbers for the territory over which it has control and do the previous year's GDP on the same territorial assumption and then showing when comparing like to like there is growth or not".

In the language of politics the quoted statement, directed at the creation of conditions enabling the holders of GDP-linked warrants to profit, equals recognition of the results certainty of unprovoked aggression against a sovereign state.

Thus, during the first stage of Russian aggression precarious situation in the Ukrainian economy ensured the success of the aggressive policy of several hedge funds that have hoarded a tremendous number of Eurobonds worth almost 9 billion dollars. Terms and conditions of the issued at the result of negotiation GDP-linked warrants very extremely unfavorable for Ukraine—even the IMF experts acknowledged that may "generate excessive payouts if an upside scenario materializes" (*Cohen, 2020*). Subsequent attempts of the legal advisors for those hedge funds to manipulate GDP data in times of ongoing war to pump money out of the country, surviving largely due to the international economic support, seem, to say the least, unethical.

Discussion

Lessons learned from GDP-linked warrants emission as a sweetener while restructuring sovereign debts (likening new securities to debt-to-equity conversions that are common in private sector restructurings) have demonstrated advantages like disadvantages of their issuance and circulation. Advantages for issuers include avoidance of default followed by temporary exclusion from capital markets, and the counter-cyclical nature of the security, enabling stabilization of government spending and improving the country's prospects for internal and external viability. Investor benefit by way of their portfolio diversification, prospects of potentially higher returns due to an opportunity to take a position on countries' future growth prospects (offering an equity-like exposure to a country).

The main disadvantages include complexity in security structuring, uncertainty of payments, limited market development and illiquidity of the warrants, and legal and regulatory issues, like

idiosyncratic risk profiles. Generally acknowledged factors of risk of linking securities to GDP traditionally were:

- incomplete picture with GDP failing to capture such important aspects of the economy as income distribution, quality of life, and environmental sustainability;
- insufficient data due to the lack of statistics for the informal sector, disregard of price changes, and impact of changes in technology and innovation on the economy.

As it turned out, the accuracy of GDP calculations depends not only on the quality of the data sources but also on the contradictory interpretations of the terms “base year” and “rebasings” by the parties of the contract.

The problems discussed in the paper seem to be of practical usefulness for the issuers and holders of GDP-linked warrants on the one hand, and experts in international finance—on the other hand. As proof of the latter, it is worth noting that the authors of the IMF Staff discussion note “State-Contingent Debt Instruments for Sovereigns”, published in 2020, have already pointed, out that “GDP warrants have faced concerns that they can encourage data manipulation and disincentivize reforms.” (*Cohen, 2020*)

Contrary to the scantily explored issue of intentional manipulation of GDP calculation, the need of capping future payments on VRI is unequivocally recognized by almost all professionals. It seems timely to transform the opinion in the mandatory requirement.

Conclusion

When analyzing the theory and practice of the emission and circulation of the GDP-linked warrants the issue of appropriate calculation of GDP and GDP growth rate, like the possibility of data manipulation by both debtors and creditors was highlighted. Exploration of two case studies has revealed that while the government of Argentina was accused of intentional miscalculation of GDP to avoid payments, Andrew Wilkinson, leading the team of Weil Gotshal & Manges advisors to the committee of creditors of Ukraine, suggested his methodical approach to GDP calculation, ensuring payments to warrant holders even in case of a sharp decline of the economy of the debtor country. In the first case the following lawsuits have prevented holders of Argentinian warrants from receiving any payment since 2012, and in the second, if Wilkinson’s view will be transformed into an official agreement, a “haircut” of 3.2 billion dollars US in 2015 will be doomed with the repayment of up to 6 billion dollars US per year during next 15 years—seemingly not an optimal debt restructuring for any country. Especially for the country, which according to the IMF baseline case scenario, is facing a 38.5 billion dollars US financing gap in 2024 and 23.6 billion dollars US in 2025.

In the case of war-torn Ukraine such huge profits of the foreign hedge funds—main holders of Ukrainian GDP holders—can be provided only by the taxpayers of European and North American countries, already rendering immense support to Ukraine in its fight against the aggressor. The moral hazard of intentional manipulation of data by one or even both parties, as in the abovementioned case studies, substantiates the imperative need to develop a commonly agreed contractual framework and draft conventional guidelines on the design of GDP-linked warrants. Such guidelines can benefit both issuers and investors by enhancing transparency and managing risks.

Participants of the Global Sovereign Debt Roundtable and experts of international financial institutions discussed conceptual and, especially, practical issues of the emission and circulation of the value recovery instruments may provide an incentive to develop a standardized Term sheet for the emission of GDP-linked warrants.

Conflict of Interest

The author declares that there is no conflict of interest.

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