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FINANCIAL SECTOR DEVELOPMENT PROGRAM (USAID/FINREP-II)

INDICATORS FOR MEASURING AND CONTROLLING THE PUBLIC DEBT OF UKRAINE

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Abstract

This report is intended to assist the Ministry of Finance in evaluating the efficacy of the indicators for debt management as mandated by the Cabinet of Ministers of Ukraine in 2013. It reviews the indicator's attributes of accuracy of measurement, and the ability to affect or control debt management practices. This report finds the current five indicators are accurate in measurement, but weak in control aspects. This is largely due to the political and financial crisis affecting Ukraine since 2014. This paper recommends three new proposed indicators to enhance the MOF debt management actions.



FINANCIAL SECTOR DEVELOPMENT PROGRAM (USAID/FINREP-II)

This report is intended to assist the Ministry of Finance as it evaluates the efficacy of current debt management indicators, and offers additional indicators for consideration.

FINREP-II is the USAID Financial Sector Development Program in Ukraine, implemented by Financial Markets International, Inc. (FMI). www.fmi-inc.net.

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Executive Summary

This report is intended to assist the Ministry of Finance (MOF) in evaluating the efficacy of the indicators for debt management as mandated by the Cabinet of Ministers of Ukraine (CMU) Decree 320, (April 29, 2013); and to suggest alternative indicators that could be useful for facilitating the MOF's debt management.¹ This report relies upon MOF data, and forecasts of data underlying the 2015 state budget law, to analyze existing indicators, and offer additional target indicators to strengthen the level of control for government debt management practices.

The premise of this paper is that indicators must embody two attributes to be useful management tools: measurement and control. *Measurement* accurately assesses the evolution of the thing to be managed. *Control* dependably reflects actions by a policymaker. The management of Ukraine's public debt portfolio is currently severely attenuated by tumultuous events. Policy changes toward reshaping a portfolio must be planned well in advance, and implemented over years, not months.

This paper first evaluates the five CMU mandated indicators. It then presents three new indicators. In summary, this report finds the following:

CMU Indicator: Debt-GDP ratio. This ratio neither accurately assesses the debt nor reflects the MOF's actions to control it. Even with no inflows of funds from new debt, the ratio increases with a depreciating exchange rate and is lowered by inflation. Thus, the ratio reflects the consequences of a depreciating exchange rate and inflation, but does not reflect the policies of the MOF to manage or control Ukraine's public debt.

CMU Indicator: Share of domestic holdings in public debt. This indicator assesses the share of public debt held by domestic institutions, but that is largely beyond the control of the MOF. Primary dealers absorb new debt incrementally in weekly auctions, but the major holders—including the IMF and other international institutions during financial crises—are beyond the MOF's power to control or delimit.

CMU Indicator: Share of public debt at fixed interest rate. This indicator can be accurately measured, but the allocation of fixed versus variable interest rates is determined by the market for Ukraine's debt. In normal times, variable interest rates offer a risk-bearing choice to the borrower—variable rates entail risk bearing by the borrower with a lower initial interest rate to reflect the risk premium borne by the borrower. But, during a financial crisis, creditors are unlikely to be willing to offer this choice. Hence, the option not being available, this ratio is not within the control of the MOF.

¹ Portal of the Cabinet of Ministers of Ukraine, "Medium-Term Strategy for Public Debt Management in 2013-2015," CMU Communications and PR Department, 7 May 2013. This decree is reproduced for reference in Appendix 1; the five indicators and their targets for each of the medium-term years, 2013-2015, are set out in the last paragraph of the decree.

CMU Indicator: Weighted Average Maturity (WAM) of public debt. Weekly MOF auctions must offer securities to primary dealers corresponding to their demands. During periods of crisis, creditors will favor shorter maturities over longer ones. Also, in such periods, the relatively greater prevalence of international institutions puts the maturity structure beyond the control of the MOF.

CMU Indicator: Share of public debt to be refinanced during coming year. By definition, this indicator is initially fixed, determined by the history of MOF debt management. While the MOF can marginally affect it over time by its auction choices, its autonomy in so doing is limited both by the primary dealers' demands and by the actions of international institutions during periods of financial crisis.

This paper recommends the use of three complementary new indicators that are readily measurable, and provide somewhat greater "control" aspects.

New Proposed Indicator: Credit-Default Spread (CDS). This measures the market assessment of a sovereign debtor's default likelihood, a useful indicator that it is available in real time online. The price of an insurance policy against a debtor's default, it measures what a creditor is willing to pay for such protection. During 2014 and early 2015, it tracked closely Ukraine's tumultuous financial events, demonstrating that it is both timely and accurate. While the control of this indicator depends upon the totality of the GOU's financial policies, its attenuated control by the MOF is appropriate in its linkage to events.

New Proposed Indicator: International reserves relative to external debt. The ratio of international reserves to Ukraine's external debt, both expressed in terms of USD, provides a measure of the confidence with which the MOF can service its external debt. This ratio could provide a measure of exposure of government finance to international finance, and it would be a useful indicative evaluator. Data on Ukraine's external public debt by month in USD is available with a one-month lag, compatible with the utility of MOF's control.

New Proposed Indicator: State budget share of debt service and repayment. This budget share is the anticipated expense of servicing the public debt—interest and repayment. It is the complement share to the structural balance, the budget share comprising normal expenditures on goods and services. This indicator's rising share mirrors the financial crisis that Ukraine is working through, revealing the risks of debt finance on government, which limits other needed expenditures and services. Thus, the proposed indicator both measures debt burden and reflects efforts to manage it.

Conclusion. The current CMU mandated indicators reflect standard international good practice, and accurately measure aspects of Ukraine's public debt. However, the Ukrainian political and financial crisis commenced a year after the CMU mandated these indicators. In this turmoil, these indicators only weakly meet the second criterion, generally failing to afford control to GOU policymakers. The three new additional proposed indicators are gauged as equal on measurability, but offer a greater control

element. For all eight of these indicators, there is another criterion important in a democracy—namely, data transparency. The data used in constructing the indicators should be publicly available, so the public and its specialized agents, such as financial institutions and media, can verify the successes, failures, and their magnitudes and trends claimed by the government’s financial managers.

It must be recognized that the Minister of Finance, Natalie Jaresko, is now simultaneously seeking an IMF Extended Fund Facility of USD 17.5 billion, and major debt restructuring. These efforts will be determinative of Ukraine’s financial future.

Background

The MOF’s efforts to strengthen its debt management efficiency are taking place within an era of broad economic reforms that were in large part mandated by the Standby Agreement negotiated with the IMF in the spring of 2014. This agreement has been succeeded by a more extensive financial agreement, the Extended Fund Facility, whose negotiations were completed early in February 2015. This agreement will provide Ukraine with a total financing package of around \$40 billion over the four year period. The IMF Managing Director, Ms. Lagarde, described Ukraine’s overall economic reform effort as ambitious, tough, and broadly based:

“But it is also a realistic program and its effective implementation.... can represent a turning point for Ukraine....Over the past year, despite the challenging environment, the Ukrainian authorities have clearly shown their commitment to ambitious reform on several key fronts. They have maintained strong fiscal discipline (a 2014 deficit of 4.6% of GDP vs. a target of 5.8%); they have adopted a flexible exchange rate regime; and they have significantly increased household gas prices to 56% of the import price, and heating prices to about 40% of the import price in 2014. In addition... they have begun to strengthen the country’s anti-corruption and anti-money laundering framework. The government is committed to... energy tariff increases; bank restructuring; governance reforms of state-owned enterprises; and legal changes to implement the anti-corruption and judicial reform agenda. This program will require the authorities’ steadfast determination to reform the economy.”²

Efforts to ensure that debt management is efficient and well-run are consistent with the ambitious program described by the IMF’s Managing Director. To support these ambitions, this report assesses the utility of the MOF’s debt management program by analyzing the debt management indicators used to guide the oversight of Ukraine’s debt portfolio.

² Christine Lagarde, “Statement by IMF Managing Director Christine Lagarde on Ukraine,” February 12, 2015

It is a truism of economic development that what is not measured cannot be managed. Yet, it is important to recognize that the converse is not valid—i.e., what is measured cannot *necessarily* be controlled. The extreme analogies are the automobile with a speedometer, gas pedal, and brakes... and a calendar. A car measures its speed and instantly permits control. A calendar measures time but *cannot control* the passage of time.

Managers of a nation's debt portfolio typically operate in an attenuated environment, and the feedback in the control of a debt portfolio is almost always very lagged.³ Changes in and reshaping of the portfolio must be planned well in advance—over years, not months.

As an illustration, consider the weighted average maturity (WAM) of the debt portfolio, which is one of the five indicators mandated by the CMU decree. This is a weighted average of several classes of bills, notes, and bonds—some, short bills have maturities as short as a month, while bonds for bank recapitalization or loans by the IMF have maturities exceeding 5 or even 10 years. Overall, Ukraine's WAM is currently about 5 years. Now, consider how the auction plans and refinancing of maturing debt—actions to lengthen the maturity—can affect this 5 year weighted average. Roughly one fifth of the debt portfolio matures each year, and let us assume for illustration that these maturings are spread equally over the year.⁴ Now, if the debt managers plan to increase the debt portfolio's WAM, they will need to increase the maturity of each maturing debt instrument as they come due and are refinanced. Yet, the maximum share of the portfolio that they would be able to change in any single month would be less than 2% of the total portfolio. Thus, even if the maturing debt being refinanced was doubled in its maturity, the impact on the portfolio's WAM in any single month would be tiny. Like the supertanker's maneuvering, the authorities do have control, but the debt managers' capability to reshape the portfolio is very limited and gradual.

It must be stressed that management of GOU's debt is affected by many policy actions not under the control of the MOF Debt Management Division. While this is true, the evaluations in this paper presume that fiscal policies and policy actions taken to further these objectives are integrated and unified in an overall policy stance—that is, they are the intended outcomes of the integrated GOU.

³ The qualification is necessary as some key policy changes are immediately reflected in the indicator—as for example the change in the NBU's exchange rate policy (5 February 2014) on Ukraine's sovereign default likelihood—see chart 3, page 13.

⁴ Note that the increase in WAM also will reduce the share of the debt coming due and to be refinanced. But even more attenuated than any planning for increasing WAM, the effort to reduce the share of debt to be refinanced—another of the five indicators mandated in the CMU decree-- will be a delayed effect, coming due only in the future. That is, again, control is afforded, but only with substantial deferral.

I. Review of indicators set out in CMU Decree 320 (April 29, 2013)

The Cabinet of Ministers' Decree 320, "Medium-Term Strategy for Public Debt Management," mandates the use of five indicators by the MOF for managing Ukraine's public debt. The Decree also specifies targets for each of these indicators to be achieved over three-year period 2013-2015⁵:

Unfortunately, most of objectives set out in the Decree have been overwhelmed by the events of 2014, and are not currently within reach. In the MOF report on the outcome for 2013, the initial year of the debt management strategy, only two of the five indicator targets were achieved (share of domestic public debt; and share of public debt to be refinanced), but of the other three only one missed substantially (share of public debt at fixed interest rate) while the deviations from the targets by the other two were minor, but rising over the next two years:

Table 1: The achievement of expected results for 2013⁶

Indicator	Target	Actual	Deviation*
Ratio of public debt to GDP	≤30.6%	33.0%	-2.4%
Domestic share of public domestic debt**	≥50%	53.5%	+3.5%
Share of public debt at fixed rate	≤65%	84%	-19%
Weighted average maturity (WAM) of public debt	≥5.1year	4.7year	-7.8%
Share of public debt to be refinanced in next year	≤20%	20%	0%

*Deviation ≡ Target minus Actual for Debt:GDP, Share of Public Debt at fixed interest rates, and Share of Public Debt to be refinanced during year; for Domestic share of Public Debt, and WAM, Deviation is Actual minus Target.

** Share comprising domestic holdings of total debt

⁵ Portal of the Cabinet of Ministers of Ukraine, "Medium-Term Strategy for Public Debt Management in 2013-2015," CMU Communications and PR Department, 7 May 2013.

⁶ Ministry of Finance, "Report on the 2013 Medium-Term debt management strategy for 2013-2015" 01.04.2014

For the year 2014, however, the targets for debt management indicators were broadly missed, and the percentage deviations were accelerating:

Table 2: The anticipated achievement of expected results for 2014⁷

Indicator	Target	Actual	Deviation*
Ratio of public debt to GDP	≤30.9%	57.2%	-27.7%
Domestic share of public domestic debt **	≥50%	48.6%	-1.4%
Share of public debt at fixed rate	≤65%	76.1%	-11.1%
Weighted average maturity (WAM) of public debt	≥5.3year	3.8 year	-18.8%
Share of public debt to be refinanced in next year	≤20%	25.2%	-5.2%

*Deviation ≡ Target minus Actual for Debt:GDP, Share of Public Debt at fixed interest rates, and Share of Public Debt to be refinanced during year; for Domestic share of Public Debt, and WAM, Deviation is Actual minus Target. Negative deviation indicates indicator outside of target range

** Share comprising domestic holdings of total debt

Of course, the impacts of the economic crisis, both of the greatly diminished international reserves and the ongoing strife in the Donbas, have made the design of the budget, the marketing of government debt, and reforms required by the negotiated arrangements with the IMF for more complicated than in normal times. These disturbances have greatly contributed to the indicators' objectives receding from reach. So, as a first step, it will be useful to consider the characteristics of each of the CMU five indicators.⁸

A. Public debt to GDP to be no more than 30.6%, 30.9% and 31%

While the public debt of Ukraine as a share of GDP currently vastly exceeds the target for this indicator ratio, the rising share since the end of 2013 has been due both to the decline in GDP (denominator) and the rise in the forex value of borrowing (the numerator). Yet, it is relevant to consider that the numerator's increase is in large part due to the depreciation of the UAH's exchange rate against the dollar and the Euro.

⁷ Sources: Debt-GDP ratio, Bloomberg View, 22.01.15; domestic share of public debt www.minfin.gov.ua, "Summary on Public Debt and Government-Backed Debt of Ukraine (as of January 31, 2014)"; Share of debt at fixed rate, MOF, Ukraine Investor Presentation, 03.14; weighted average maturity of public debt, FINREP Focus, 27.01.15; share of public debt to be refinanced in coming year, MOF data.

⁸ Indeed, it is important to emphasize the five indicators mandated by the CMU's Debt Strategy of 2013 are quite orthodox. A recent World Bank research paper that addressed the debt management performance of 24 emerging market countries [Phillip Anderson, Anderson Silva, and Antonio Velandia-Rubiano, "Public Debt Management in Emerging Market Economies—Has This Time Been Different?" World Bank Research Working Paper 5399, August 2010] found that these five indicators (or close variants) were in use by the nation's MOFs in their debt management.

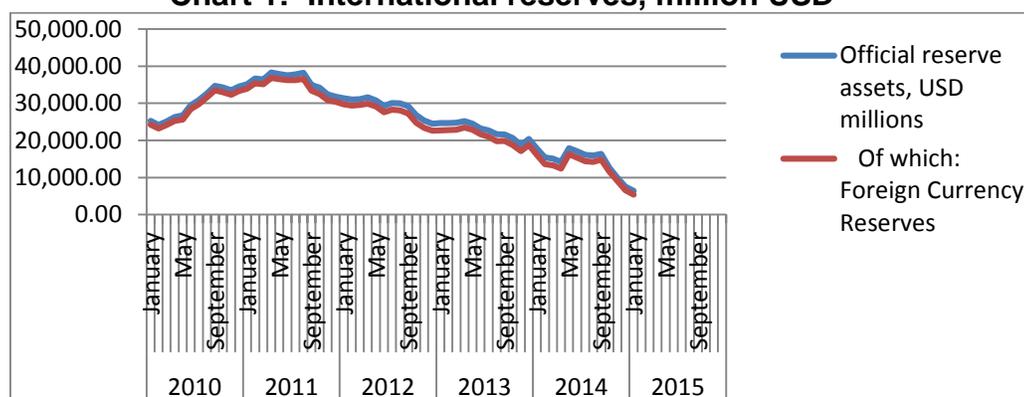
Table 3: Public Debt Ratio to GDP

	2013	2014	2015
Public Debt	480.2 bUAH	946.8 bUAH	1,176.1 bUAH*
GDP	1453.7 bUAH	1654.1 bUAH	1,720.0 bUAH**
Ratio	33.0 %	57.2%	68.3%

*Source: Maximum debt (end of 2015), State Budget Law, art. 5

**News service, quoting Deputy MOF (<http://ukranews.com/news/146165.Minfin>)

This indicator is particularly ill-suited for debt management in a heavily indebted state that has a floating exchange rate. While Ukraine formally floated its exchange rate in the Spring of 2014, the NBU continued to post a daily official exchange rate on the basis of a daily Dutch auction of exporter revenues. Thus, the NBU attempt administratively to support the UAH against the USD came at the cost of decreasing international reserves, as shown in the chart below.

Chart 1: International reserves, million USD

From their peak in September 2011, Ukraine's international reserves steadily declined, hinting persistently that the UAH was overvalued.⁹ Finally, the administered float—the so-called indicative exchange rate—was abandoned on February 5, 2015. Freed from its constraining outflow of reserves, the UAH-USD exchange rate ballooned to 25/USD, a depreciation of more than 50 percent. Since the street exchange rate had exceeded this administrative rate by as much as 25%, holders of USD (and Euros, too) withheld deposits from banks, so that the enhanced scarcity also drove the difference between the street and bank/official rate. While this policy was ended on February 5, 2015, the earlier de facto rise in the USD value of the outstanding Ukraine public debt due to the depreciating exchange rate under the indicative policy accounts for most of this indicator's rise from 30% to 68%, with a corresponding target miss rising from -2.1% to -37.3%. That is, during the calendar year 2014, the UAH-USD exchange rate doubled.

⁹ Note that this decline was almost entirely in the NBU's foreign currency reserves. The NBU initially shifted to a floating arrangement at the end of March 2014.

During 2014, the USD obligations of the GOU, as a share of Ukraine's public debt and guarantees actually declined slightly—from 46.5% to 44.9%—while the USD magnitude rose from 31.3 billion USD to 34.0 billion USD, an increase of about 13%. Yet the UAH value of these obligations rose from 271.4 billion UAH to 494.0 UAH, an increase of 82%. Thus, combined with the other foreign currency obligations (euro, SDRs, yen) in the external debt, the exchange rate depreciation—*not new added debt*—accounts for most of the rise in Ukraine's debt-GDP ratio. Continued borrowing, at ever rising USD and Euro exchange rates, will raise the ratio even more. The point is that these exchange rate effects are beyond the control of the MOF, and the rise does not indicate any lapse of control by Ukrainian authorities. Hence, the ratio is not useful as a gauge of the MOF's debt management.¹⁰

Further, the recent declines in real GDP would, absent inflation, increase the ratio even more, but this effect is masked by inflation which raises the denominator and reduces the ratio. In a perfect exchange rate market, the exchange rate would depreciate at the same rate as inflation, so the overstatement of the denominator would be offset by the rising numerator. However, the inflation rate was not fully incorporated in the exchange rate due to the NBU's indicative rate policy. Thus, inflation tends to make this ratio look more favorable, but again, this is beyond the control of the debt managers of the MOF. Summarizing the utility of this indicator by the two criteria, measurement and control, we find the following:

Measurement: The ratio does measure the burden of debt, but not with precision, nor does it capture the economy's capacity for servicing the debt. In periods of inflation, the denominator will rise without linkage to the debt accumulation, overstating the efficacy of debt management. In periods when the exchange rate is depreciating, the ratio will be overstated.

Control: The ratio is largely dominated by external events, in particular forces of inflation or deflation and exchange rate movements. Thus, this indicator does not reflect actions of the GOU in controlling its debt load.

Caveat. The exchange rate distortions of this ratio do reflect the financial pressures resulting from exchange rate depreciation, and it does signal the risks of borrowing in foreign currencies. Moreover, the ratio is particularly vulnerable to suppressed changes in the currency exchange rate. That is, the concealed risks of this foreign currency borrowing are made more costly by their covert accumulation, masked by the overvalued currency, until they are revealed by the dramatic depreciation when events—reserve losses—compel the floating of the currency. Nevertheless, these hidden losses from the rising value of foreign debt are intimated by movements—particularly losses—of foreign reserves as shown in Chart 1 above.

¹⁰ Of course, any attempt to peg the exchange rate will exacerbate this effect and, cause the USD exchange rate's depreciation to accelerate—as well as draining international reserves if the authorities attempt to support the UAH's value.

B. Domestic debt share (of public debt) to be no less than 50%

The share of domestically held debt in total public debt is set as an indicator of debt management. With the demand for finance rising, and domestic production falling, the effect of an increasing government deficit is a likely accompaniment to a country facing a financial crisis. In this case, the rising finance required is increasingly likely to be obtained from international sources—and in foreign currency terms—so that there would be a rise in the share of foreign finance (and, consequently, a decline in the share of domestic government debt holdings).

Table 4: Share of domestic debt in total public debt

	2013	2014	2015
Domestic Public Debt	256.96 bUAH	461.00 bUAH	573.9 bUAH*
Public Debt	480.22 bUAH	946.82 bUAH	1,176.1 bUAH**
Domestic share of public debt	53.5%	48.6%	48.8%

*Sum of end-of-year 2014 domestic debt and limit on domestic borrowing in 2015 State Budget Law, Appendix 2

**Source: Maximum public debt as of 31.12.15, 2015 State Budget Law, Article 5

As noted, the decline of the share of domestic debt provides no clue as to whether fiscal policy is improving. Rather, it simply reflects the relatively greater recourse to international finance as domestic investors shy away from government debt instruments. If so, the decline of this indicator shows weakness—not strength in domestic financial markets—and the GOU's target for a domestic debt share of not less than 50% is a valid indicator target.

Measurement: This ratio is distorted by the exchange rate depreciation, analogously to the Debt:GDP ratio. While both numerator and denominator are measured in the same (domestic) currency, the denominator's value is swelled by the depreciation of the currency (by the portion that is in foreign currency). Thus, the ratio can decline even if domestic borrowing is proportionally rising when the currency is depreciating. Hence, the ratio does not measure the relative recourse to domestic credit when the currency is rapidly depreciating, as is currently the case.

Control: The fiscal authorities in an open economy do not have direct control over this ratio, as international investors will have equal access to government securities. The ratio only imperfectly indicates the domestic strength of fiscal policy in its capacity for supplying its capital and deficit finance from domestic sources.

C. Weighted average public debt term to maturity to be at least 5.1, 5.3 and 5.4 years

This indicator's target is a measure of market strength, and in a financial crisis, there is likely to be a reluctance (reflected in higher interest rates or fewer bidders in auctions or both) to lend at longer maturities. Consequently, lengthening of the debt portfolio's weighted maturity is not likely to occur during the 2013-2015 term of the MOF's

medium-term debt strategy. As shown in Table 5, the weighted average maturity of Ukraine’s public debt has remained relatively stable at just under five years during the three years of the MOF current policy set out in its “Medium-Term Strategy for Public Debt Management in 2013-2015.”

Table 5: Weighted Average Maturity (WAM) of Public Debt

	2013	2014	2015
WAM Public Debt, Target	≥5.1 years	≥5.3 years	≥5.4 years
WAM Public Debt, Actual	4.7 years*	4.8 years*	5 years*

*MOF Debt Division supplied data

The lengthening of the weighted maturity is unlikely to be sustained during a financial crisis. Supporting this unambiguous pessimism is the lack of bids received in the MOF’s regularly scheduled auctions for longer term debt: eg, “The MOF received no bids during the regular February 10 primary auctions for its 2-year and 5-year UAH-denominated notes.”¹¹ For the weighted maturity to increase would require consistent bids for longer maturities at each auction, but the lack of bids for longer maturities implies a continued decline in the weighted maturity of Ukraine’s debt.

The weighted maturity does reflect the policy efforts of the fiscal authorities, and a larger number does ease the burden of public debt. That is, the larger the weighted average maturity of the public debt, the smaller the share that would need to be refinanced in any given budget year. To a limited degree, the fiscal authorities can control this measure by offering larger/smaller amounts of the budget deficit at higher maturities. Of course, the higher maturities may command a higher interest rate—normally, the yield curve is positively sloped. When the yield curve is negatively sloped, the rates at all maturities will command a premium relative to the normal ordering, so attempts to lengthen maturity structure should not be attempted. Thus, in normal times with prudent fiscal policy, the yield curve will be positively sloped and the higher interest rates of longer maturities will be balanced by the advantages of lengthening the structure.

Measurement: The weighted average maturity does measure the character of the public debt portfolio, providing information about the share of the debt to be refinanced in each budget.¹²

Control: The fiscal authorities have control of the structure through the tradeoff of a higher interest rate for longer maturities, and can choose this maturity over time. However, this control is limited by the selection of rates and maturities offered by the authorities corresponding to the primary dealers’ demands for them. If the desired auction portfolios do not match the primary dealers’ demands, then the MOF has little control over WAM.

¹¹ USAID FINREP II, Focus, 11 Feb. 2015.

¹² Note that WAM is related to the share of debt to be serviced during the period—that is, the greater WAM, the smaller will be the share of debt maturing in the current year.

D. Fixed-rate portion of public debt to be no more than 65%

In a crisis characterized by a negative yield curve, the bond auctions are likely to facilitate flexible rates. A better alternative would be “call options”—even though these would require a premium.

Table 6: Portion of Public Debt at Fixed Interest Rate

	2013	2014	2015
Actual	84.0%	82%*	65%*
Target	≤65%	≤65%	≤65%

*MOF data supplied by Debt Division

The authorities can designate those auctions where the debt that will be offered at a fixed rate, and at a variable rate. Generally, a variable rate transfers the risks of events that would cause the rate to rise—eg, an unforeseen increase in inflation or default risk – to be borne by the debtor in a variable rate, so that a variable-rate security, would sell at a lower interest rate reflecting the amount of the risk premium born by the borrower. Consequently, a balance of variable and fixed interest rates will have lower rates than for a totally fixed rate portfolio. The authorities can only change this rate by their specifications in the weekly debt auctions, and only if the primary dealer’s demands match the securities the MOF offers in weekly auctions.

Measurement: The split between fixed and variable rate debt accurately reflects the shares of the debt and the effect of the different interest rates.

Control: The authorities can control this share.

Caveat. While the authorities can control the share of debt obligated at fixed or variable rates, their success in achieving this depends on how well the debt offered in the auctions corresponds with the demands by the primary dealers for those investment vehicles.

E. Public debt portion refinanced in the relevant period to total public debt as of the start of the period to be no more than 20%

In a financial crisis, the tendency for the weighted maturity to decline will, necessarily, also imply that the share of debt maturing each year will rise. Consequently, the share of debt to be refinanced will also rise. As shown in Table 7, the share of Ukraine’s public debt refinanced has risen strongly over the three years of the medium-term debt strategy, and it is anticipated to continue to rise in the state budget of 2015. This share of annual refinance is a reflection of the maturity structure, so it is not an independent indicator.

Table 7: Share of public debt to be refinanced in next year

	2013	2014	2015
Debt Refi During Year	79.8 bUAH	120.8 bUAH	158.9 bUAH*
Debt at End of prior Year	399.2 bUAH	480.2 bUAH	585.5 bUAH
Percent Debt Refi	20.0%	25.2%	27.1%

*Source: Appendix 2, Law of Ukraine on the State Budget for 2015

Since this indicator is simply another aspect of the maturity structure, the same analysis set forth at Table 5 applies.

Measurement: The share of public debt to be serviced and refinanced can be accurately measured and does reflect the weights to be addressed in the budget.

Control: The authorities can affect this share, over time, by the changes between the maturities they choose to refinance relative to the maturities of debt being refinanced.

II. Alternative indicators for guiding and evaluating MOF Debt Management Policy

This section suggests and evaluates three alternative indicators. Each of these new indicators offers some strengths in terms of their tracking and providing evaluations of trends in the debt portfolio—and keys to pricing of new debt. Data for two of the three are readily available as should be the case for a suitable indicator, and data for the third could be supplied by the MOF and the NBU.

A. Credit-Default Swaps Spread

Credit Default Swaps (CDS) spread provides an indicator of the market estimate of a sovereign debtor's likelihood of default, a useful indicator and one to which a heavily indebted country like Ukraine should be sensitive. It is an advance indicator of the credit risk evaluations that Moodys, Standard and Poors, and Fitch will impose through a battery of subjective and objective data. Since the CDS spreads summarize the findings of these evaluative groups, this indicator will be useful in GOU debt policy deliberations. A further advantage is that it is a market-based indicator, and reflects investors' evaluations and apprehensions. A further advantage is that it is available in real time online.¹³

The CDS spread is the price of a CDS, and a CDS is an insurance policy against the possible default of a debtor. It measures what a creditor is willing to pay for protection; reflecting the market's view of the likelihood of default. As Deutschebank Research expresses this:

¹³ Source: Deutsche Bank Research, "Credit Default Spreads," www.dbresearch.com/servlet/reweb2

CDS spreads are an indicator of the market's current perception of sovereign risk... DB Research translates CDS spreads into implicit default probabilities online so that they can be interpreted in a straightforward manner: for example, a spread of 200 basis points is equivalent to the notion that the market is pricing in an annual chance of about 3% that the issuing government will default.¹⁴

The following two charts illustrate the application of the CDS-based default likelihoods. Chart 2 shows the likelihood of default (per CDS spread) for Germany, United Kingdom, and the USA: their default likelihoods are around 0.5%—1 chance in 200. It also presents, by contrast, the default likelihoods of Estonia and Lithuania (three to four times higher) and Portugal a state in higher risk, but still around 2.4% likelihood of default within the year, around 1 in 40.

Chart 2: Default Probabilities, Germany, UK, US and Estonia, Lithuania, and Portugal

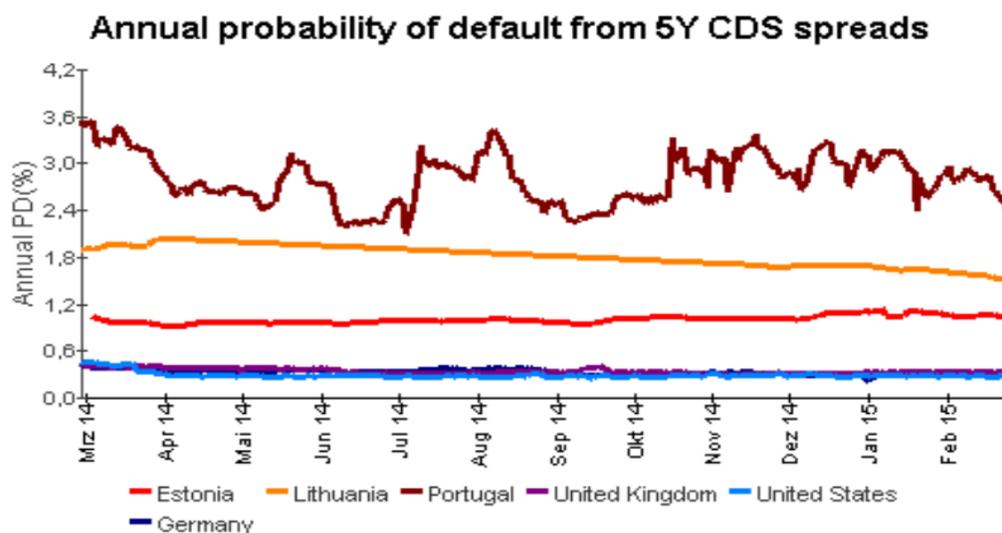
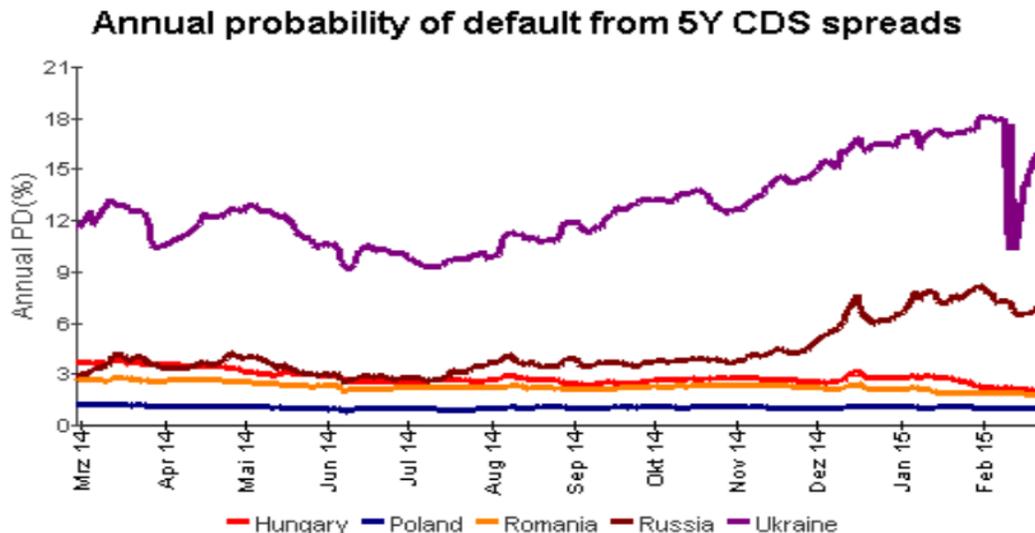


Chart 3 displays the CDS based default likelihood for Ukraine, Poland, Romania, Hungary, and Russia. These likelihoods of default are considerably higher—Ukraine's was nearly 18%, or about 1 in 6. Poland's likelihood is just over 1%, nearly 1 in 100, while Hungary and Romania are just about 3% or 1 in 33, as was Russia's until mid-2014 when it began to parallel at a lower rate the movements of Ukraine's, reaching a 6% likelihood in February, 2015, a 1 in 17 chance of default.

¹⁴ Deutsche Bank Research, "Credit Default Spreads,"

Chart 3: Default Probabilities, Poland, Romaina, Hungary, Ukraine, and Russia

Note that Ukraine's default likelihood fell in April 2014 (from 13% to about 10%) when the NBU first "floated" the UAH, then began to rise again as the "float" became a "managed float" with its attendant drain of Ukraine's international reserves. It fell again from May to July contemporaneous with the successful negotiation with the IMF for a Standby Arrangement that would enhance the chances for debt service, one element of which was a floating exchange rate. Yet, then again it began its inexorable rise as the financial reforms that Ukraine had promised to the IMF--conditions for the financial assistance, failed to transpire, jeopardizing the IMF Standby Arrangement. The likelihood of default continued to rise with the observed lack of compliance with the agreed reforms, and then falling again as the negotiations with the IMF became more positive. Rising since July, as impatience with the pace of Ukraine's reform turned the likelihood of assistance more tenuous. Then, with the NBU's announcement of a discontinued managed float—with the positive implications for halting the international reserve depletions—the default likelihood dropped by half—from 18% to 9%.

Measurement: As noted, the postulated default percentage for Ukraine tracked the events of 2014-2015 quite well. Thus, the indicator is unusually prompt in reflecting policy changes and implications of both monetary and fiscal authorities' policy actions.

Control: The control of this indicator depends upon the totality of the GOU's financial policy actions, so the MOF's direct control is attenuated. Nevertheless, given the accuracy with which it reflects the broad financial conditions—and in particular the change in exchange rate policy—this attenuated control by the debt authorities is appropriate in its linkage to events.

B. International reserves relative to external debt

The ratio of international reserves to Ukraine's external debt, both expressed in terms of USD, provides a measure of the confidence with which the MOF can fulfill its responsibilities for debt management. This is a measure of solvency, defined as the degree to which current assets sufficiently cover the corresponding class of liabilities of comparable term. During the year, this ratio would provide a measure of exposure of government finance to international finance. The total of this debt will not be subject to refinance, but the size of the reserves in relation to it nonetheless provides a measure of the exposure and the potential cover for it.

Table 8: Reserve asset cover of external public debt

	2013	2014	2015
External Public Debt	27,931.8 mUSD	30,809.1 mUSD	Unknown
Official Reserve Assets	20,415.7 mUSD	7,533.3 mUSD	6,419.7 mUSD*
Percent Cover	73.1%	24.5%	Unknown

*end of January 2015, Table of International Reserves

The size of the international reserves for the full year is not subject to plausible forecasting, and the fluctuating range of Ukraine's official reserves during 2015 is estimated by financial commentators to be between \$15 to \$38 billion USD. With the January 2015 reserves reported to be \$6.4 billion USD, even the low or pessimistic end of this range reflects some accumulation resulting from the end of the NBU supporting of the exchange rate, along with the financial support of the IMF's Extended Fund Facility—a financial lifeline to Ukraine from the Fund comprising about \$17.5 billion.¹⁵ As shown earlier in Chart 1, the loss of international reserves has been persistent since August of 2011, implying that the exchange rate has been overvalued over this time span. Thus, the announced shift by the NBU to end its indicative system of a managed float will stanch the outflow of reserves due to an overvalued exchange rate.

Measurement: This ratio would be a useful indicative evaluator, but we have been unable to find a source for data on Ukraine's external public debt by month or quarter in USD. The data on reserves in USD are available. Hence, this proposed ratio would fail on the availability of data and, further, on its non-transparency as a result of data lacking.

Control: The control would be useful and within reach as both elements of the ratio are in USD, but the lack of contemporary data for external debt rules out this candidate indicator.

¹⁵ "Statement by IMF Managing Director Christine Lagarde on Ukraine," IMF Press Release No. 15/50, February 12, 2015.

C. State budget share of debt service and repayment¹⁶

A proposed indicator for the ratio of external debt service to the state budget planned expenditures provides a complement to what is referred to as the “structural balance”.¹⁷ This is the budget that comprises normal expenditures on goods and services. The complement indicator proposed here is the anticipated expense of servicing the public debt—interest and repayment.

As revealed in Table 9, the proposed indicator rises from 22% to 24% from 2013 to 2014, and then nearly doubles for the 2015 budget. This doubling of the budget burden reflects the financial crisis that Ukraine is working through, and reveals the risks of debt finance on government capacities for other needed expenditures and services. Thus, the debt indicator provides both evidence of the situation (measurement validity) and will reflect the GOU’s efforts to reduce public debt service to a manageable level. That is, the proposed indicator is both a measure of the debt burden and reflects efforts to manage it.

Table 9: Budget share of debt service and repayment

	2013	2014	2015
Public Debt Servicing	31.7 bUAH	34.8 bUAH	74.7 bUAH
Public Debt Repayment	79.8 bUAH	90.8 bUAH	158.9 bUAH
Total Payments Related to Public Debt	111.5 bUAH	125.6 bUAH	233.6 bUAH
State Budget Expenditures	505.8 bUAH	523.0 bUAH	527.9 bUAH
Debt Payment % of Budget	22.0%	24.0%	44.3%

Measurement: These data are available and useful for anticipating the instruments to be offered in the auctions.

Control: This is an apt indicator both for debt management and for budget design.

III. Conclusions: The efficacy of indicators for Ukraine’s Debt Management

These evaluations of indicators are based on how well they enable the MOF to achieve the objectives of its debt management. In this report, we have simplified this evaluation process to two dimensions—measurement and control. *Measurement* comprises accuracy of assessment and relative promptness of availability. *Control* evaluates the linkage between the policy and the actions of policymakers in trying to achieve the target objectives assigned in the budget. The five CMU mandated indicators were

¹⁶ This indicator is related to a generally used corporate indicator, the debt service coverage ratio (DSCR), also known as debt coverage ratio. In corporate finance, as here, it is a measure of the capacity for servicing further credit extensions, quantified by the availability of liquid assets to service additional debt.

¹⁷ The government budget balance is differentiated by closely related terms such as *primary balance* and *structural balance* (also known as *cyclically-adjusted balance*) of the general government. The primary budget balance equals the government budget balance before interest payments, and the complement to it is what is proposed in the text.

assessed on these two dimensions. We find that two of the indicators that involve total debt—Debt:GDP and Domestic Share of Public Debt—are each distorted by the depreciation of the exchange rate (which raises the size of the public debt in foreign currency); in that sense, they are warning indicators of the risks of foreign debt. The other three mandated indicators are each prey to the demands of the primary dealers: If the objectives of the MOF debt management targets are inconsistent with these demands, the MOF will be unlikely to attain its objectives.¹⁸ Moreover, all five of the mandated indicators were lacking on the criterion of control. The three suggested new additional indicators all provide accurate measurement, and offer somewhat greater control attributes.

One further aspect of usable indicators is that the information content of indicators should be transparent, and provided to the public. The public should be afforded the opportunity for its independent evaluation of public policy. This entails access to data used in the indicators, and then reporting of the indicators to enable the public to evaluate their government's performance. Transparency enables the public to determine the veracity with which policies and objectives are pursued and reported. When the data used in constructing them are available to the public, the indicators allow the public (and its more specialized agents in the financial community) to verify the successes, failures, and their magnitudes and trends claimed by the government's financial managers.

Consequently, it follows that the best indicators should have a third criterion—in addition to measurement and control—and that is verifiability. MOF and NBU websites can enhance this transparency aspect. In short, good indicators with data made promptly available enable the public to look over the shoulder of the policymaker.

¹⁸ This is one strong reason for the development of a secondary market for GOU securities, which the IMF has emphasized in its negotiations with the GOU. The enhanced liquidity of GOU securities would aid in the appeal of GOU securities and provide an easier primary market for the MOF.

APPENDIX 1: Medium-Term debt management strategy for 2013-2015 approved

Decree No. 320 of the CMU, 07.05.2013 | 10:45

DEPARTMENT OF INFORMATION AND COMMUNICATION OF THE SECRETARIAT
OF THE CMU

Medium-Term debt management strategy for 2013-2015 has been approved. The decree № 320 "On approval of the Medium-Term debt management strategy for 2013-2015," the Cabinet of Ministers adopted on April 29, 2013.

As it is reported in the Strategy during 2012 the maintenance of public debt at around 28.5 percent of GDP is ensured, which is 1.5% points below the threshold set by the end of the mentioned period.

In 2013 the total public debt is planned in the amount of UAH 135.5 billion, of which UAH 92.9 billion (68.6 percent) are domestic borrowings, UAH 42.7 billion (31.4 percent) – external borrowing.

Taking into account such amount of borrowings that provided in the Law of Ukraine "On the State Budget of Ukraine for 2013" the national debt in national currency will be UAH 483 billion.

In 2014 and 2015 projected the amount of borrowing will be respectively UAH 131.4 billion and UAH 125.6 billion.

The main factor for increasing the debt burden on the state budget in the short and medium term is the need to repay foreign debts among which the largest amount is a loan of the International Monetary Fund.

During 2013 year the peak load on the budget is expected in May, June, August and November due to the repayment of IMF loans and Bonds of foreign bills of 2003 year.

Implementation of the Strategy will achieve by the end of 2013, 2014 and 2015 the following results:

- the ratio of government debt to GDP to be at a level not more than 30.6 percent, 30.9 percent and 31 percent;
- the share of domestic debt to be not less than 50 percent;
- weighted average maturity of public debt to be not less than 5.1, 5.3 and 5.4 years;
- share of public debt at a fixed rate to be not less than 65 percent;
- share of public debt that refinanced in the same period in the total public debt at the beginning of that period to be approximately no more than 20 percent.

APPENDIX 2: Statement of Deliverables for the Debt Expert's Consultancy on Debt Management

This report is the second part of Dr. Ott's assignment for the FINREP II project, and, as specified in his contract for this assignment, entails a report addressing the utility and functionality of indicators of public debt in Ukraine as instruments for the Debt Division (of the MOF):

1. "To increase the predictability and transparency of debt management operations, and in turn reduce uncertainty for investors, analyze relevant 2013-2014 statistical data and provide recommendations regarding possible expansion of the list of target indicators so as to strengthen the level of control in the government debt area..."
2. Expressed as a deliverable, produce a "written analysis of relevant 2013-2014 statistical data and recommendations regarding possible expansion of the list of target indicators so as to strengthen the level of control in the government debt area and to inform the GOU and the public on the context in which debt management operates and on the outcomes of the debt management strategy."