# **Bond Market Insight**

Weekly review: Pre-election week



TUESDAY, 27 MAY, 2014

Despite the anticipation arising from this past weekend's presidential elections, all routine transactions were completed last week. The primary auction was held and debt repayments occurred on time, most likely using proceeds from US-backed Eurobonds and quarterly tax payments.

**Domestic bond market.** Although there were several inflows, liquidity declined last week, causing broader banking sector liquidity to fall to this month's low of UAH38.04bn. The decline in liquidity was most likely the result of quarterly tax payments at the beginning of last week and the month-end tax payments that followed. Moreover, some funds may have been spent on FX purchased prior to the election day.

**Eurobond market.** In reaction to positive anticipations arising from the presidential election, Ukrainian Eurobond prices rose last week. Most bond prices rose above 90 and the yield curve traded mostly was between 9.0% and 10.0%. If this election outcome is final, it could have a positive impact on the market. However, all eyes will be on the scheduled UKRAIN 7.95% '14 redemption next week and the official announcement of the election results.

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### Key market indicators (as of 26 May 2014)

	Last close	Weekly chg (%)	YTD chg (%)
Currencies			
USD/UAH (spot)	11.9150	-0.29	44.60
USD/UAH (1Y NDF)	14.1500	-1.39	50.21
Rates, yields & spreads	s (%)		
Kiev Prime ON	5.00	0bp	-280bp
Kiev Prime 3M	18.00	-13bp	200bp
UAH NDF 1Y	N/A		
Ukraine CDS 5Y	945bp	-89bp	128bp
Libor USD 1yr	N/A		
UST 2yr	0.34	1bp	-4bp
UST 10yr	2.53	2bp	-50bp
UKRAINE 17	10.04	-91bp	48bp
UKRAINE 23	8.95	-36bp	-10bp
Money market data (UA	\Hbn)		
Accounts at NBU	26.74	-5.07	-18.24
NBU CDs outstanding	7.70	-40.56	0.00
Local currency bond m	arket data	(UAHbn)	
Govt bond outstanding	287.17	-0.97	15.28
Held by			
NBU	176.91	1.20	22.13
Banks	83.82	-4.83	4.55
Other residents	10.37	-3.85	-16.32
Non-residents	16.07	-1.42	37.36

Notes: chg – percentage change; bp – basis points. Sources: Ministry of Finance of Ukraine, National Bank of Ukraine, Bloomberg, Investment Capital Ukraine LLC.

### **Research team**

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## Market update and news

### Domestic bond market

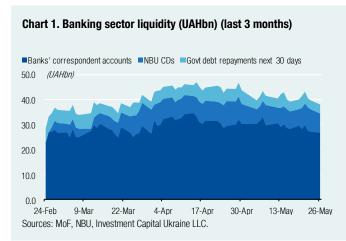
### Tax payments pressure on liquidity

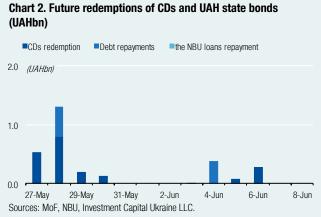
Liquidity declined after some inflows from the NBU...

Although liquidity was under the pressure of quarterly tax payments through 20 May, month-end tax payments, which began the next day, continued to cut liquidity. Starting from UAH40.03bn in broader banking sector liquidity, liquidity rose to UHA43.13bn through Wednesday after receiving UAH1.2bn of loans from the NBU last Monday and UAH2.0bn via bond purchases. Debt repayments did not have a positive impact, and liquidity declined to UAH39.60bn through the end of last week to open at this month's low at UAH38.04bn yesterday.

...with some new absorption of funds via CDs

Banks' correspondent accounts with the NBU declined UAH2.72bn last week to UAH26.74bn yesterday at the market open, while the NBU slightly increased CDs outstanding by UAH1.05bn, including a CD redemption refinancing last Friday and a redemption yesterday. Total debt repayments scheduled for the next 30 days was quite stable last week, increasing UAH0.81bn last Tuesday and declining a slightly greater UAH1.12bn last Thursday.





This week will be under new pressure from tax payments This week only UAH0.77bn interest repayments are due, of which UAH0.26bn is in FX. While the MoF might not refinance these repayments at today's primary auction, the NBU could change its CDs outstanding to control liquidity and prevent banks' correspondent accounts with the NBU from falling significantly. Liquidity could decline due to tax payments with some possible injections from the MoF and the NBU.

### Last week's primary auction

The MoF canceled the auction last week for the first time since March For the first time in nearly two months, the MoF rejected all bids submitted at last week's auction, most likely because of small bids at relatively high rates. Bids were submitted for three out of the four bonds offered at the auction, including the 3-month zero-coupon bond, the 2-year and 3-year coupon-bearing bonds, all denominated in local currency. The MoF received five bids which were at low volumes compared with the previous auction's volumes.



Interest rates were high with low volumes, which are unattractive to the The interest rates for submitted bids were about 17.00%, which is lower than the KyivPrime 1M interest rate. Two bids for a total of UAH100.00m were submitted for the 3-month bond at 16.50% and 17.00%, and one bid was submitted for UAH10.0m of the 3-year bond at 17.75%. Two bids were submitted for UAH20.0m of the 2-year bond, similar to what was bid at the previous auction and very close to the cut-off rate, at 17.00% and 17.25%.

Debt repayments were made without refinancing using other proceeds With UAH3.46bn in debt principal and interest repayments scheduled for last Wednesday, last week's demand was insufficient, especially at higher interest rates, and the debt repayments were likely made using funds received from foreign borrowings and budget revenues from tax payments.

### **Primary auction announcement for today**

Today the MoF will try to sell 2-weeks USD-denominated bonds...

Today's primary auction was announced with changes to the original schedule which was published at the beginning of this month. Although the MoF added new local currency denominated bonds earlier, today's auction will see also a USD-denominated bond offering. In addition to the 5-year local currency bond, a 2-year local currency bond, usual for this month, will also be offered. However, of particular note is a never before offered 2-week USD-denominated bond that was added. For details of the auction, please see the table below.

...most likely to increase
FX reserves for the end
of month

The MoF previously sold 8-day bonds ahead of the US\$3.0bn financing from Russia last December and 23-day bonds at the end January in anticipation of receiving the second tranche of Russian financing. This time, the MoF most likely will increase FX borrowings in May to increase FX reserves at the beginning of June prior to the US\$1.0bn Eurobond redemption and in anticipation of new FX financing in June.

Table 1. Details of the auction, announced for 20 May, 2014

ISIN	Type of placement	Bond type	Currency	Tenor (days)	Maturity	Coupon rate (%)	Volume outstanding (UAHm)
UA4000180426	Re-opening	Coupon-bearing, bullet	UAH	1778	10-Apr-19	14.30	74.73
	Primary	Zero-coupon	USD	14	11-Jun-14	N/M	0.00
	Primary	Coupon-bearing, bullet	UAH	721	18-May-16	N/A	0.00

Notes: N/A - not available; N/M not meaningful.

Sources: Ministry of Finance of Ukraine, Investment Capital Ukraine LLC.

### VAT bonds could be issued no earlier than next month

Ukraine's Cabinet of Ministers last week adopted a new resolution on the issuance of VAT bonds, the third time in Ukrainian history to issue debt to repay the VAT refund. This time, the bonds will have a traditional 5-year maturity with semi-annual coupon payments and the same frequency as amortization payments, with 10% of the principal amount being repaid with each coupon payment.

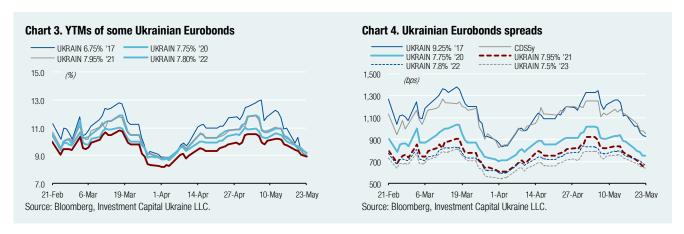
Adopting of this resolution does not mean that the bonds will be issued immediately. The Ministry of Taxation should provide the MoF with information on general indebtedness in two weeks, and then the MoF should submit a draft of the Cabint of Ministers' resolution to schedule the offering. The Ministry of Taxation then has up to two months has to register all tax payers and volumes of VAT refunds to be repaid with the bonds. Some of these deadlines will occur in June, and some later, but the process could be finalized next month if there is political expediency.



### **Eurobond market**

### **Positive anticipations**

Eurobond market improves on positive anticipations and recent financing Last week, the Eurobond markets appears to have benefited from the impact of positive anticipations from the Ukrainian presidential elections as well as from Russia's stalled invasion threats. After receiving financing from the IMF and US-backed Eurobonds, Eurobond prices rose as the yield curve adjusted to the range of 9.0-10.0% with some exceptions. Through the end of last week, the yield curve moved to 8.93-11.61%, excluding UKRAIN 5.00% '15 and UKRAIN 1.844% '19, the same as UKRAIN 7.95% '14. Over the course of last week, yields declined 80-246bp (see the left-hand chart below), mostly at the short-term end of the yield curve, flattening significantly. Spreads also significantly tightened, mostly to below 1,000bp, as the 5-year CDS declined to 950bp last Friday.



As this week began with a US holiday and quiet trading, the impact of the presidential elections could be seen today or later this week.

### Metinvest's 1Q14 EBITDA up 91% YoY, net debt down in 2013

Although Metinvest increased its EBITDA by 91% YoY to US\$878m in 1Q14, according to its trading update released yesterday, the company's net revenues declined 8% YoY to US\$2.928bn and capex grew 29% YoY to US\$124m. As of end-1Q14, Metinvest's net debt declined 2% to US\$3.445bn compared to end-2013, while the company's net debt/EBITDA ratio declined to 1.3x from 1.5x as of end-2013.

Metinvest also reported that its crude steel output fell 11% YoY to 2.755mt, iron ore concentrate declined 5% YoY to 8.82mt and raw coking coal decreased 12% YoY to 2.537mt.

Table 2. Metinvest's Eurobond quotation as of market close, 20 May 2014

Issuer	Moody's/S&P /Fitch	Ссу	Volume	Coupon (%)	Maturity	Price (%)	YTW (%)	Spread (bp)
Metinvest	Caa2//CCC	USD	500m	10.25	20-May-15	96.625	14.302	1,406
Metinvest	Caa2//CCC	USD	750m	8.75	14-Feb-18	88.375	12.756	1,125

Source: Bloomberg



Metinvest reduced its sales revenues as a result of lower sales volumes and selling prices. By geographic segments, the company saw most significant reductions in sales volumes in the CIS and also in Southeast Asia, where sales of not only steel but also iron ore products declined. However, the negative impact of lower revenues was more than offset by the hryvnia devaluation, as well as decreasing consumption and lower prices of energy inputs, such as natural gas and coking coal. The market environment should remain challenging for Metinvest throughout 2014 due to high competition and oversupply in the key ferrous metal markets. Political instability in the Ukraine's eastern regions, where the majority of Metinvest's steelmaking assets are located, may pose additional difficulties for the company's operational process. For more details, please see our upcoming note.



# **Appendixes**

The following pages contain tabular information on the local fixed-income market. There are tables that detail government debt repayments such as a weekly schedule for current year and quarterly schedule for next 5 years.



### **UAH** bond market

Table 3. Ukrainian local-currency government bonds as of 26 May 2014

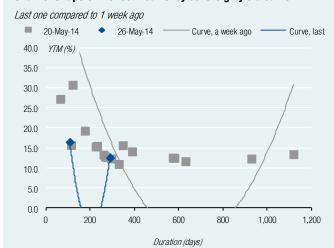
Ticker	Volume	Coupon	Maturity	Price	YTM	Weekly	Weekly	Duartion 1	N daily avg	1W total	Total	Liquidity
	(UAHm)	rate (%)		(% of par)	(%)	price chg (bp)	yield chg (bp)	(years)	turnover (UAHm)	turnover (UAHm)	turnover (UAHm)	ratio*
158794	1,805.12	7.5	10-Sep-14	99.206	16.51	4	78	0.29	0.00	0.00	1,675.30	0.93
160642	2,405.96	7.75	18-Mar-15	98.075	12.61	4	22	0.79	338.13	338.13	6,639.53	2.76
142681	650.37	4.8	6-May-15	102.813	-0.90	0	-3	0.45	0.00	0.00	0.00	0.00

Notes: 1W - last 7-day period; turnover figures are trade volumes for a bond reported by PFTS; total turnover - total volume of trades with the bond at PFTS since issue date; [\*] liquidity ratio - ratio of total turnover to bond's volume in outstanding.

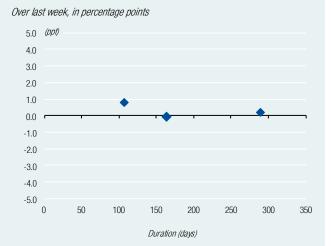
Sources: Bloomberg, PFTS, Investment Capital Ukraine LLC.



### Chart 5. Shape of the local-currency sovereign yield curve



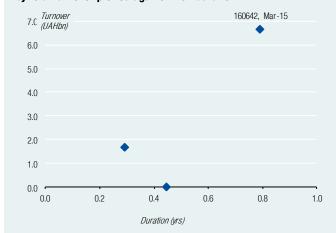
### Chart 6. Movement of the local-currency sovereign yield curve



Sources: Ministry of Finance, Bloomberg, PFTS, Investment Capital Ukraine LLC.

# Chart 7. Map of Ukraine's local-currency government bonds by total turnover plotted against their duration

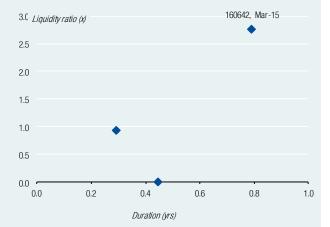
Sources: Ministry of Finance, Bloomberg, PFTS, Investment Capital Ukraine LLC.



Note: Total turnover and duration are taken from Table 3, page 7. The bonds with turnover of UAH2bn and more have labels, which consist of PFTS ticker and after a coma month and year of maturity.

Sources: Ministry of Finance, Bloomberg, PFTS, Investment Capital Ukraine LLC.

Chart 8. Map of Ukraine's local-currency government bonds by liquidity ratio plotted against their duration



Note: Total turnover and duration are taken from Table 3, page 7. The bonds with liquidity ratio of 1.1x and more have labels, which consist of PFTS ticker and after a coma month and year of maturity.

Sources: Ministry of Finance, Bloomberg, PFTS, Investment Capital Ukraine LLC.



## **Eurobond market**

Table 4. Ukrainian Eurobonds as of 26 May 2014

Ticker	Issuer	Ratings	Volume (million)		•	Maturity	Price (% of par)	YTM (%)	Weekly price chg (bp)	Weekly yield chg (bp)	Spread (bp)	Duration (years)
UKRAIN-15	Ministry of Finance	Caa3/CCC/CC	500.0	USD	6.875	23-Sep-15	94.352	11.61	118	-101	1,062	1.26
UKRAIN-15	Ministry of Finance	Caa3/CCC/CC	600.0	EUR	4.95	13-0ct-15	93.709	10.04	92	-75	912	1.32
UKRAIN-16	Ministry of Finance	Caa3/CCC/CC C	1,250.0	USD	6.25	17-Jun-16	93.614	9.76	129	-73	906	1.89
UKRAIN-16	Ministry of Finance	Caa3/CCC/CC C	1,000.0	USD	6.58	21-Nov-16	93.402	9.64	127	-61	899	2.31
UKRAIN-17	Ministry of Finance	Caa3/CCC/CC C	2,600.0	USD	9.25	24-Jul-17	97.883	10.04	234	-91	900	2.71
UKRAIN-17	Ministry of Finance	Caa3/CCC/CC C	700.0	USD	6.75	14-Nov-17	93.251	9.07	216	-78	793	3.12
UKRAIN-20	Ministry of Finance	Caa3/CCC/CC C	1,500.0	USD	7.75	23-Sep-20	93.947	9.02	213	-47	732	4.99
UKRAIN-21	Ministry of Finance	Caa3/CCC/CC C	1,500.0	USD	7.95	23-Feb-21	94.316	9.09	205	-43	641	5.18
UKRAIN-22	Ministry of Finance	Caa3/CCC/CC C	2,250.0	USD	7.8	28-Nov-22	91.826	9.21	230	-43	651	6.26
UKRAIN-23	Ministry of Finance	Caa3/CCC/CC C	1,250.0	USD	7.5	17-Apr-23	91.255	8.95	200	-36	628	6.46
AGTPW-14	Agroton	NR/NR/WD	50.0	USD	12.5	14-Jul-14	31.875	38.32	0	10	3,476	3.53
PRBANK-16	<b>6</b> Pryvatbank	Cau/NR/NR	150.0	USD	8.75	9-Feb-16	69.844	29.71	258	-255	2,845	1.59
UKRINF-17	Infrastructure Projects Fin	Caa3/NR/NR	538.0	USD	8.375	3-Nov-17	84.500	14.24	0	1	1,305	2.99
UKRINF-17	Infrastructure Projects Fin	(P)Caa3/NR/N R	550.0	USD	9	7-Dec-17	88.643	13.13	103	-40	1,204	2.92
UKRINF-18	Infrastructure Projects Fin	Caa3/NR/NR	690.0	USD	7.4	20-Apr-18	85.250	12.28	0	1	1,029	3.38
UKRAIN-14	Ministry of Finance	Caa3/CCC/CC C	1,000.0	USD	7.95	4-Jun-14	100.000	7.65	150	-7,551	-2,692	0.01
CITKIE-15	Kyiv	Caa3/CCC/CC C	250.0	USD	8	6-Nov-15	83.563	21.96	194	-181	2,049	1.37
CITKIE-16	Kyiv	Caa3/CCC/CC C	300.0	USD	9.375	11-Jul-16	82.375	19.98	106	-69	1,870	1.87
VABANK-14	<b>1</b> VAB Bank	Caa1 /*- /NR/WD	112.5	USD	10.5	14-Jun-14	90.100	38.87	0	0	4,071	0.38
NAFTO-14	Naftogaz of Ukraine	NR/NR/CCC	1,595.0	USD	9.5	30-Sep-14	95.188	24.62	19	-39	2,434	0.34
PUMBUZ-14	<b>4</b> FUIB	Caa3/NR/NR	252.5	USD	11	31-Dec-14	84.813	41.58	656	-1,512	4,073	0.56
EXIMUK-15	Ukreximbank	Caa3/NR/CCC	750.0	USD	8.375	27-Apr-15	92.000	18.27	31	-35	1,776	0.89
DTEKUA-15	DTEK	Caa2/NR/CCC	500.0	USD	9.5	28-Apr-15	94.500	16.20	88	-106	1,570	0.89
MHPSA-15	MHP	Caa2/NR/CCC	584.8	USD	10.25	29-Apr-15	100.438	9.72	6	-8	873	0.89
METINV-15	Metinvest Holding	Caa2/NR/CCC	500.0	USD	10.25	20-May-15	96.688	13.99	56	-63	1,286	0.95
PRBANK-18	5 Pryvatbank	Caa3u/NR/CC C	200.0	USD	9.375	23-Sep-15	82.563	25.79	206	-216	2,538	1.24
AVINPU-15	Avangard	NR/NR/CCC	200.0	USD	10	29-0ct-15	94.125	14.73	38	-29	1,397	1.34
EXIMUK-16	Ukreximbank	Ca/NR/C	125.0	USD	8.4	9-Feb-16	79.875	20.43	163	-132	1,977	1.60
OSCHAD-16	<b>3</b> Oshchadbank	NR/NR/B	200.0	USD	8.25	10-Mar-16	0.000	0.00	0	0	0	0.00
OSCHAD-16	<b>3</b> Oshchadbank	Caa3/NR/CCC	500.0	USD	8.25	10-Mar-16	89.375	15.26	225	-161	1,430	1.66
MRIYA-16	Mriya Agroholding	NR/CCC/CCC	250.0	USD	10.95	30-Mar-16	91.375	16.56	75	-50	1,562	1.67
FXPOLN-16	Ferrexpo PLC	Caa2/CCC+/C CC	500.0	USD	7.875	7-Apr-16	97.938	9.10	169	-103	872	1.74
NADRA-17	Nadra Bank	WR/NR/WD	59.7	USD	8	22-Jun-17	82.180	23.81	0	0	1,949	1.28



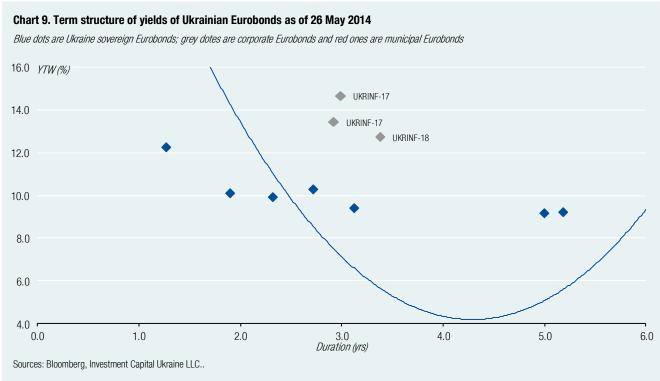
INPIP-17 Interpipe	NR/NR/C	200.0	USD	10.25 2-Aug-17	76.188	20.85	-6	5	1,926	2.62
EXIMUK-18 Ukreximbank	Caa3/NR/CCC	500.0	USD	8.75 22-Jan-18	87.063	13.34	113	-43	1,178	3.05
METINV-18 Metinvest Holding	Caa2/NR/CCC	750.0	USD	8.75 14-Feb-18	88.875	12.58	38	-13	1,088	3.13
PRBANK-18 Pryvatbank	Caa3u/NR/CC C	175.0	USD	10.875 28-Feb-18	82.688	17.33	438	-190	1,525	3.01
OSCHAD-18 Oshchadbank	Caa3/NR/CCC	500.0	USD	8.875 20-Mar-18	85.313	13.97	281	-109	1,217	3.20

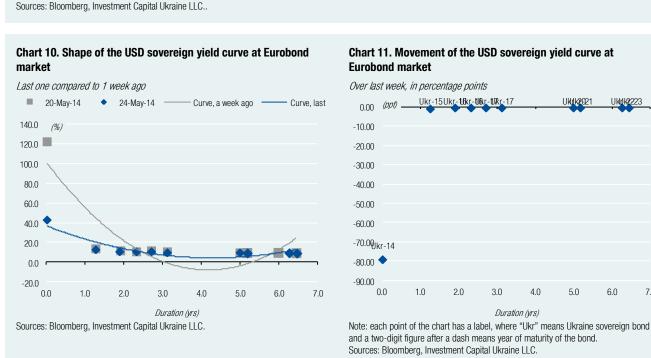
Sources: Bloomberg, Investment Capital Ukraine LLC.



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## **Primary market for UAH state bonds**

Table 5. Primary market for local-currency government bonds: results of recent auctions

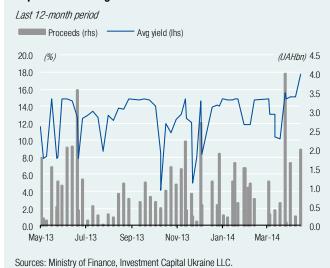
Date	Qty of bonds offered/ sold	Proceeds (UAHm)	bonds	Volume of bids submitted (UAHm)	Qty of bids sub- mitted	Lowest yield asked** (%)	Highest yield asked** (%)	MoF cutt- off yield (%)	Qty of bids accepted	Average yield (%)	WA yield (%)	Average duration (years)	WA duration (years)
13-May-1	4 1	2,000.00	1,987.48	1.99	4	17.00	17.00	17.00	4	17.74	17.74	1.74	1.74
6-May-14	2	246.60	100.00	320.00	4	9.95	20.00	12.48	2	15.15	14.96	1.40	1.17
29-Apr-14	2	1,636.78	20.00	1,620.00	7	9.95	16.00	12.48	3	15.11	15.60	1.38	2.42
24-Apr-14	1	74.96	74.73	74.73	1	14.30	14.30	14.30	1	14.85	14.85	3.70	3.70
22-Apr-14	1	4,000.00	4,000.00	4,000.00	4	15.00	15.00	15.00	4	15.59	15.59	2.52	2.52
15-Apr-14	1	587.66	600.00	600.00	1	9.95	9.95	9.95	1	10.21	10.21	0.21	0.21
9-Apr-14	1	391.04	400.00	400.00	1	9.95	9.95	9.95	1	10.34	10.34	0.23	0.23
8-Apr-14	1	103.66	110.00	110.00	2	12.75	12.75	12.75	2	13.09	13.09	0.48	0.48
1-Apr-14	1	282.07	300.00	330.00	4	12.75	23.50	12.75	1	13.08	13.08	0.50	0.50
31-Mar-14	4 1	1,155.23	1,150.00	1,150.00	3	14.25	14.25	14.25	3	14.80	14.80	2.50	2.50
12-Mar-14	4 2	684.52	712.08	712.08	3	14.00	14.00	14.00	3	14.71	14.71	0.29	0.29
6-Mar-14	1	1,100.34	1,100.00	1,100.00	1	11.50	11.50	11.50	1	11.86	11.86	3.92	3.92
4-Mar-14	1	1,000.00	1,000.00	1,000.00	1	11.50	11.50	11.50	1	11.86	11.86	3.93	3.93
27-Feb-14	1 1	1,503.69	1,500.00	1,500.00	1	11.50	11.50	11.50	1	11.86	11.86	3.91	3.91
26-Feb-14	1 1	1,500.00	1,500.00	1,500.00	1	11.50	11.50	11.50	1	11.86	11.86	3.93	3.93
18-Feb-14	1 1	600.00	600.00	600.00	1	14.25	14.25	14.25	1	14.84	14.84	3.73	3.73
13-Feb-14	1 1	1,655.00	1,650.00	1,650.00	1	14.25	14.25	14.25	1	14.80	14.80	3.71	3.71
11-Feb-14	1 1	1,151.08	1,145.00	1,145.00	2	14.25	14.25	14.25	2	14.79	14.79	3.69	3.69
4-Feb-14	1	209.27	208.71	208.71	2	14.25	14.25	14.25	2	14.79	14.79	3.71	3.71
29-Jan-14	1	273.01	273.01	0.00	2	14.25	14.25	14.25	2	14.80	14.80	3.73	3.73
28-Jan-14	1	10.11	10.00	10.00	1	14.30	14.30	14.30	1	14.85	14.85	4.56	4.56
23-Jan-14	1 3	1,881.79	688.05	1,958.05	11	8.25	14.25	10.67	10	14.03	14.13	1.48	1.59
21-Jan-14	1 3	537.93	340.00	540.28	10	5.00	14.25	9.17	7	14.15	14.48	1.41	1.83
14-Jan-14	1 2	1,150.73	1,152.26	1,152.26	19	8.75	14.25	11.50	6	13.85	14.76	2.35	3.68
31-Dec-13	3 1	544.86	550.00	550.00	1	8.00	8.00	8.00	1	8.29	8.29	0.12	0.12
30-Dec-13	3 4	2,695.11	2,374.81	2,645.12	6	5.00	14.30	9.64	6	14.67	14.81	2.09	3.81
24-Dec-13	3 1	99.96	99.83	99.83	1	7.75	7.75	7.75	1	7.92	7.92	2.71	2.71
19-Dec-13	3 2	234.96	184.00	234.00	4	4.80	5.00	4.90	4	5.00	5.06	0.02	0.02
17-Dec-13	3 2	837.39	123.30	823.30	2	7.75	14.25	11.00	2	12.14	14.09	3.07	3.49
10-Dec-13	3 2	405.47	47.49	397.49	2	7.75	14.30	11.03	2	12.53	14.40	3.59	4.31
9-Dec-13	2	2,211.89	2,200.00	2,200.00	2	14.25	14.30	14.28	2	14.83	14.84	4.14	4.31
3-Dec-13	4	1,480.13	1,405.00	1,454.93	5	7.75	14.30	12.10	5	13.04	14.66	3.60	3.96
26-Nov-13	3 5	1,083.86	862.07	1,082.98	13	4.00	14.30	9.56	13	12.39	11.66	2.63	1.82
19-Nov-13	3 5	1,542.65	761.35	1,536.85	9	4.00	14.25	9.10	9	10.87	10.94	3.11	2.68
12-Nov-13	3 5	906.07	654.81	900.81	15	4.00	14.25	8.65	14	11.93	10.63	1.43	0.58
6-Nov-13	1	458.93	460.00	565.00	11	4.00	10.00	4.25	4	4.12	4.12	0.06	0.06
5-Nov-13	1	49.89	48.65	48.65	1	8.25	8.25	8.25	1	8.41	8.41	1.58	1.58
29-0ct-13	2	614.19	625.55	665.55	7	7.75	14.25	11.13	5	14.03	14.02	2.19	2.18
22-0ct-13	1	739.96	738.00	738.00	3	14.25	14.25	14.25	3	14.79	14.79	3.71	3.71
15-0ct-13	2	1,128.68	1,126.01	1,126.01	3	14.25	14.30	14.28	3	14.82	14.82	4.17	4.12

Notes: the tables depicts the history of last 40 auctions; [\*] - volume of bonds sold at the auction at par value; [\*\*] - lowest and highest yields that are indicated in the bid orders submitted to the auction in order to buy all bonds offered by MoF.

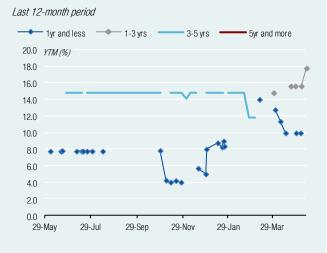
Sources: Ministry of Finance, Investment Capital Ukraine LLC.



# Chart 12. Effective yield of debt raised by MoF and total volume of proceeds at the government bond auctions

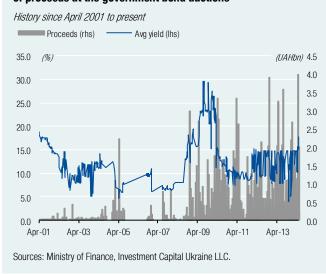


# Chart 13. Yield-to-maturity of government bonds sold at auctions, breakdown by duration of bonds sold

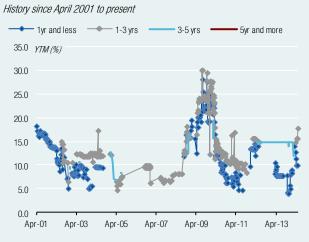


Sources: Ministry of Finance, Investment Capital Ukraine LLC.

## Chart 14. Effective yield of debt raised by MoF and total volume of proceeds at the government bond auctions



# Chart 15. Yield-to-maturity of government bonds sold at auctions, breakdown by duration of bonds sold



Sources: Ministry of Finance, Investment Capital Ukraine LLC.



## **UAH** state bonds outstanding

Table 6. Outstanding of local-currency government bonds

ISIN	Bond type	Outstanding volume (UAH)	Coupon rate (%)	Payment frequency	Amortisation option	Put option	Next put	Maturity date
Government UAH	bonds							
UA4000179865	Zero-coupon bonds	712,080,000.00	14.00	Upon maturity	No	No		25-Jun-2014
UA4000180319	Zero-coupon bonds	1,000,000,000.00		Upon maturity	No	No		2-Jul-2014
UA4000123863	Coupon bonds	752,000,000.00	10.10	Semi-annually	No	No		9-Jul-2014
UA4000180442	Zero-coupon bonds	170,000,000.00		Upon maturity	No	No		30-Jul-2014
UA4000180210	Zero-coupon bonds	410,000,000.00		Upon maturity	No	No		1-0ct-2014
UA4000178883	Zero-coupon bonds	25,000,000.00		Upon maturity	No	No		15-0ct-2014
UA4000064026	Coupon bonds	1,000,000.00	18.50	Semi-annually	No	No		21-Jan-2015
UA4000064166	Coupon bonds	451,875,000.00	15.00	Semi-annually	No	No		28-Jan-2015
UA4000141592	Coupon bonds	250,000,000.00	14.30	Semi-annually	No	No		20-May-2015
UA4000180582	Coupon bonds	1,987,478,000.00	17.00	Semi-annually	No	No		27-Apr-2016
UA4000106181	Coupon bonds	80,002,000.00	9.50	Quarterly	Yes	Yes	13-Jul-2016	13-Jul-2016
UA4000107528	Coupon bonds	7,087,500.00	12.50	Quarterly	Yes	No		20-Jul-2016
UA4000180202	Coupon bonds	1,150,000,000.00	14.25	Semi-annually	No	No		15-Mar-2017
UA4000180459	Coupon bonds	1,600,000,000.00	15.00	Semi-annually	No	No		29-Mar-2017
UA4000138853	Coupon bonds	1,928,720,000.00	14.30	Semi-annually	No	No		5-Apr-2017
UA4000180400	Coupon bonds	4,000,000,000.00	15.00	Semi-annually	No	No		19-Apr-2017
UA4000180541	Coupon bonds	100,000,000.00	15.00	Semi-annually	No	No		3-May-2017
UA4000142665	Coupon bonds	1,759,740,000.00	14.30	Semi-annually	No	No		24-May-2017
UA4000142003	Coupon bonds	1,810,000,000.00	14.30	Semi-annually	No	No		2-Aug-2017
UA4000143373	Coupon bonds	1,824,455,000.00	14.30	Semi-annually	No	No		11-0ct-2017
UA4000148571	Coupon bonds	1,890,000,000.00	14.30	Semi-annually	No	No		18-0ct-2017
UA4000140371 UA4000177745	Coupon bonds	5,000,000.00	12.10	Semi-annually	No	No		15-Nov-2017
UA4000177743 UA4000151203	•	1,493,409,000.00	14.30	-	No	No		13-Nov-2017 13-Dec-2017
	Coupon bonds	2,500,330,000.00	14.30	Semi-annually	No	No		7-Feb-2018
UA4000157119	Coupon bonds			Semi-annually				
UA4000160626	Coupon bonds	1,818,593,000.00	14.30	Semi-annually	No No	No No		7-Mar-2018
UA4000162127 UA4000165765	Coupon bonds	2,751,160,000.00	14.30	Semi-annually	No No	No No		4-Apr-2018
	Coupon bonds	1,585,600,000.00	14.25	Semi-annually	No	No No		11-Apr-2018
UA4000166219	Coupon bonds	400,000,000.00	14.25	Semi-annually	No No	No No		18-Apr-2018
UA4000166201	Coupon bonds	2,254,507,000.00	14.25	Semi-annually	No	No		2-May-2018
UA4000168082	Coupon bonds	3,050,250,000.00	14.25	Semi-annually	No	No		16-May-2018
UA4000171391	Coupon bonds	1,803,816,000.00	14.25	Semi-annually	No	No		27-Jun-2018
UA4000170732	Coupon bonds	3,853,400,000.00	14.25	Semi-annually	No	No		4-Jul-2018
UA4000174239	Coupon bonds	1,247,936,000.00	14.25	Semi-annually	No	No		5-Sep-2018
UA4000175467	Coupon bonds	1,364,010,000.00	14.25	Semi-annually	No	No		10-0ct-2018
UA4000176093	Coupon bonds	1,644,780,000.00	14.25	Semi-annually	No	No		24-0ct-2018
UA4000177919	Coupon bonds	2,100,000,000.00	14.25	Semi-annually	No	No		14-Nov-2018
UA4000178891	Coupon bonds	2,077,263,000.00	14.25	Semi-annually	No	No		9-Jan-2019
UA4000179196	Coupon bonds	1,626,723,000.00	14.25	Semi-annually	No	No		23-Jan-2019
UA4000179519	Coupon bonds	1,650,000,000.00	14.25	Semi-annually	No	No		30-Jan-2019
UA4000179691	Coupon bonds	600,000,000.00	14.30	Semi-annually	No	No		13-Feb-2019
UA4000179766	Coupon bonds	1,500,000,000.00	11.50	Semi-annually	No	No		13-Feb-2019
UA4000179741	Coupon bonds	1,500,000,000.00	11.50	Semi-annually	No	No		20-Feb-2019
UA4000179824	Coupon bonds	2,100,000,000.00	11.50	Semi-annually	No	No		27-Feb-2019
UA4000180426	Coupon bonds	74,733,000.00	14.30	Semi-annually	No	No		10-Apr-2019
UA4000138861	Coupon bonds	2,160,000,000.00	14.00	Semi-annually	No	No		17-Apr-2019
UA4000142137	Coupon bonds	1,900,000,000.00	14.13	Semi-annually	No	No		22-May-2019
UA4000146997	Coupon bonds	1,996,041,000.00	14.30	Semi-annually	No	No		18-Sep-2019
UA4000148589	Coupon bonds	2,000,000,000.00	14.30	Semi-annually	No	No		23-0ct-2019



Table 6. Outstanding of local-currency government bonds

ISIN	Bond type	Outstanding volume (UAH)	Coupon rate (%)	Payment frequency	Amortisation option	Put option	Next put	Maturity date
UA4000148944	Coupon bonds	500,000,000.00	14.30	Semi-annually	No	No		30-0ct-2019
UA4000157671	Coupon bonds	1,760,800,000.00	14.30	Semi-annually	No	No		12-Feb-2020
UA4000165773	Coupon bonds	1,820,000,000.00	14.30	Semi-annually	No	No		8-Apr-2020
UA4000166805	Coupon bonds	1,944,904,000.00	14.30	Semi-annually	No	No		6-May-2020
UA4000171094	Coupon bonds	2,403,338,000.00	14.30	Semi-annually	No	No		8-Jul-2020
UA4000175459	Coupon bonds	1,195,000,000.00	14.30	Semi-annually	No	No		23-Sep-2020
UA4000178024	Coupon bonds	2,024,807,000.00	14.30	Semi-annually	No	No		21-0ct-2020
UA4000177927	Coupon bonds	1,500,000,000.00	14.30	Semi-annually	No	No		18-Nov-2020
UA4000179170	Coupon bonds	10,000,000.00	14.30	Semi-annually	No	No		23-Dec-2020
UA4000173371	Coupon bonds	330,000,000.00	10.00	Semi-annually	No	No		23-Aug-2023
Total		82,455,837,500.00						
Government recap'	n bonds							
UA4000063200	Coupon bonds	1,598,269,000.00	9.75	Semi-annually	No	No		11-Jun-2014
UA4000136436	Coupon bonds	1,500,000,000.00	9.65	Semi-annually	No	No		30-Jul-2014
UA4000136451	Coupon bonds	1,500,000,000.00	9.75	Semi-annually	No	No		8-0ct-2014
UA4000063218	Coupon bonds	1,598,270,000.00	9.75	Semi-annually	No	No		12-Nov-2014
UA4000063226	Coupon bonds	1,598,270,000.00	9.75	Semi-annually	No	No		17-Dec-2014
UA4000136469	Coupon bonds	1,500,000,000.00	9.95	Semi-annually	No	No		4-Feb-2015
UA4000092100	Coupon bonds	500,000,000.00	9.50	Semi-annually	No	No		18-Mar-2015
UA4000146393	Coupon bonds	1,000,000,000.00	9.95	Semi-annually	No	No		2-Sep-2015
UA4000048789	Coupon bonds	2,000,000,000.00	9.50	Semi-annually	No	No		18-Nov-2015
UA4000050090	Coupon bonds	4,000,000,000.00	9.50	Semi-annually	No	No		16-Dec-2015
UA4000092118	Coupon bonds	1,500,000,000.00	9.50	Semi-annually	No	No		17-Feb-2016
UA4000115190	Coupon bonds	1,250,000,000.00	9.50	Semi-annually	No	No		9-Mar-2016
UA4000050199	Coupon bonds	3,885,000,000.00	9.50	Semi-annually	No	No		13-Apr-2016
UA4000050017	Coupon bonds	3,700,000,000.00	9.50	Semi-annually	No	No		10-May-2016
UA4000092126	Coupon bonds	1,500,000,000.00	9.50	Semi-annually	No	No		29-Jun-2016
UA4000092134	Coupon bonds	1,500,000,000.00	9.50	Semi-annually	No	No		13-Jul-2016
UA4000119945	Coupon bonds	1,750,000,000.00	9.50	Semi-annually	No	No		24-Aug-2016
UA4000050207	Coupon bonds	3,885,000,000.00	9.50	Semi-annually	No	No		14-Sep-2016
UA4000115208	Coupon bonds	1,250,000,000.00	9.50	Semi-annually	No	No		15-Feb-2017
UA4000092142	Coupon bonds	1,200,000,000.00	9.50	Semi-annually	No	No		12-Apr-2017
UA4000057111	Coupon bonds	1,033,333,000.00	9.50	Semi-annually	No	No		31-May-2017
UA4000057277	Coupon bonds	1,188,431,000.00	9.50	Semi-annually	No	No		7-Jun-2017
UA4000057301	Coupon bonds	936,171,000.00	9.50	Semi-annually	No	No		14-Jun-2017
UA4000156863	Coupon bonds	2,000,000,000.00	14.30	Semi-annually	No	No		28-Jun-2017
UA4000058606	Coupon bonds	3,100,000,000.00	9.50	Semi-annually	No	No		19-Jul-2017
UA4000158315	Coupon bonds	1,000,000,000.00	14.30	Semi-annually	No	No		16-Aug-2017
UA4000092167	Coupon bonds	1,200,000,000.00	9.50	Semi-annually	No	No		23-Aug-2017
UA4000115216	Coupon bonds	1,250,000,000.00	9.50	Semi-annually	No	No		13-Sep-2017
UA4000058614	Coupon bonds	1,658,263,000.00	9.50	Semi-annually	No	No		4-0ct-2017
UA4000153340	Coupon bonds	1,500,000,000.00	14.30	Semi-annually	No	No		8-Nov-2017
UA4000151476	Coupon bonds	2,000,000,000.00	14.30	Semi-annually	No	No		29-Nov-2017
UA4000153126	Coupon bonds	500,000,000.00	14.30	Semi-annually	No	No		13-Dec-2017
UA4000130082	Coupon bonds	2,000,000,000.00	9.50	Semi-annually	No	No		27-Dec-2017
UA4000130090	Coupon bonds	2,000,000,000.00	9.50	Semi-annually	No	No		17-Jan-2018
UA4000115638	Coupon bonds	1,975,000,000.00	9.50	Semi-annually	No	No		21-Feb-2018
UA4000113030	Coupon bonds	1,000,000,000.00	14.30	Semi-annually	No	No		14-Mar-2018
UA4000100730	Coupon bonds	1,400,000,000.00	9.50	Semi-annually	No	No		28-Mar-2018
UA40001119952	Coupon bonds	1,750,000,000.00	9.50	Semi-annually	No	No		25-Mar-2018
UA4000119932	Coupon bonds	1,000,000,000.00	9.50	Semi-annually	No	No		9-May-2018
UN40000JJJJ00	Coupon bonds	1,000,000,000.00	9.50	Jenn-annually	INU	INU		3-141ay-2010



Table 6. Outstanding of local-currency government bonds

ISIN	Bond type	Outstanding volume (UAH)	Coupon rate (%)	Payment frequency	Amortisation option	Put option	Next put	Maturity date
UA4000057319	Coupon bonds	936,172,000.00	9.50	Semi-annually	No	No		30-May-2018
UA4000057129	Coupon bonds	1,033,333,000.00	9.50	Semi-annually	No	No		6-Jun-2018
UA4000057285	Coupon bonds	1,188,431,000.00	9.50	Semi-annually	No	No		13-Jun-2018
UA4000173314	Coupon bonds	1,250,000,000.00	14.25	Semi-annually	No	No		20-Jun-2018
UA4000058622	Coupon bonds	1,916,119,000.00	9.50	Semi-annually	No	No		18-Jul-2018
UA4000173306	Coupon bonds	1,250,000,000.00	14.25	Semi-annually	No	No		25-Jul-2018
UA4000173298	Coupon bonds	1,250,000,000.00	14.25	Semi-annually	No	No		1-Aug-2018
UA4000120877	Coupon bonds	604,000,000.00	9.50	Semi-annually	No	No		8-Aug-2018
UA4000173280	Coupon bonds	1,250,000,000.00	14.25	Semi-annually	No	No		15-Aug-2018
UA4000115224	Coupon bonds	1,250,000,000.00	9.50	Semi-annually	No	No		22-Aug-2018
UA4000062525	Coupon bonds	650,000,000.00	9.50	Semi-annually	No	No		12-Sep-2018
UA4000115646	Coupon bonds	1,975,001,000.00	9.50	Semi-annually	No	No		19-Sep-2018
UA4000058630	Coupon bonds	1,355,345,000.00	9.50	Semi-annually	No	No		3-0ct-2018
UA4000059323	Coupon bonds	1,000,000,000.00	9.50	Semi-annually	No	No		31-0ct-2018
UA4000121495	Coupon bonds	1,000,000,000.00	9.50	Semi-annually	No	No		7-Nov-2018
UA4000064307	Coupon bonds	1,000,000,000.00	9.50	Semi-annually	No	No		21-Nov-2018
UA4000177943	Coupon bonds	300,000,000.00	9.50	Semi-annually	No	No		28-Nov-2018
UA4000061808	Coupon bonds	1,400,000,000.00	9.50	Semi-annually	No	No		6-Feb-2019
UA4000064315	Coupon bonds	1,294,999,000.00	9.50	Semi-annually	No	No		13-Mar-2019
UA4000058648	Coupon bonds	1,933,060,000.00	9.50	Semi-annually	No	No		3-Apr-2019
UA4000121503	Coupon bonds	1,100,000,000.00	9.50	Semi-annually	No	No		15-May-2019
UA4000057293	Coupon bonds	1,188,432,000.00	9.50	Semi-annually	No	No		29-May-2019
UA4000057327	Coupon bonds	936,172,000.00	9.50	Semi-annually	No	No		5-Jun-2019
UA4000057137	Coupon bonds	1,033,334,000.00	9.50	Semi-annually	No	No		12-Jun-2019
UA4000064323	Coupon bonds	1,000,000,000.00	9.50	Semi-annually	No	No		17-Jul-2019
UA4000063119	Coupon bonds	1,276,191,000.00	9.50	Semi-annually	No	No		21-Aug-2019
UA4000064349	Coupon bonds	1,295,000,000.00	9.50	Semi-annually	No	No		25-Sep-2019
UA4000064117	Coupon bonds	900,000,000.00	9.50	Semi-annually	No	No		16-0ct-2019
UA4000064125	Coupon bonds	900,000,000.00	9.50	Semi-annually	No	No		20-Nov-2019
UA4000063010	Coupon bonds	950,000,000.00	9.50	Semi-annually	No	No		11-Mar-2020
UA4000061816	Coupon bonds	1,400,000,000.00	9.50	Semi-annually	No	No		15-Apr-2020
UA4000121511	Coupon bonds	1,100,000,000.00	9.50	Semi-annually	No	No		20-May-2020
UA4000063127	Coupon bonds	1,500,000,000.00	9.50	Semi-annually	No	No		17-Jun-2020
UA4000063028	Coupon bonds	949,981,000.00	9.50	Semi-annually	No	No		12-Aug-2020
UA400061824	Coupon bonds	1,400,000,000.00	9.50	Semi-annually	No	No		4-Nov-2020
UA4000177950	Coupon bonds	1,400,000,000.00	9.50	Semi-annually	No	No		25-Nov-2020
UA4000063135	Coupon bonds	1,500,000,000.00	9.50	Semi-annually	No	No		9-Jun-2021
UA4000121529	Coupon bonds	1,100,000,000.00	9.50	Semi-annually	No	No		22-Sep-2021
UA4000121329	Coupon bonds	1,500,000,000.00	9.50	Semi-annually	No	No		1-Jun-2022
Total		112,971,577,000.00	9.50	Jenn-annually	NO	NO		1-Juli-2022
Government VAT bon	nds 2010							
UA4000078141	Coupon bonds	14,532,000.00	5.50	Semi-annually	Yes	No		27-Jul-2015
UA4000070141	Coupon bonds	614,344,500.00	5.50	Semi-annually	Yes	No		21-Aug-2015
UA4000082622	Coupon bonds	2,491,461,900.00	5.50	Semi-annually	Yes	No		24-Aug-2015
UA4000083059	Coupon bonds	1,810,435,500.00	5.50	Semi-annually	Yes	No		25-Aug-2015
Total	oodpoil boildo	4,930,773,900.00	0.00	com annually	100	140		20 / ldg 2010
Government indexed	bonds							
UA4000129100	Coupon bonds	1,610,000,000.00	8.22	Semi-annually	No	No		24-Sep-2014
UA4000129902	Coupon bonds	175,000,000.00	8.22	Semi-annually	No	No		22-0ct-2014
UA4000130595	Coupon bonds	200,000,000.00	8.25	Semi-annually	No	No		29-0ct-2014
UA4000130603	Coupon bonds	1,200,100,000.00	8.22	Semi-annually	No	No		5-Nov-2014



Table 6. Outstanding of local-currency government bonds

ISIN	Bond type	Outstanding volume (UAH)	Coupon rate (%)	Payment frequency	Amortisation option	Put option	Next put	Maturity date
UA4000132278	Coupon bonds	250,000,000.00	9.75	Semi-annually	No	No		3-Dec-2014
UA4000137822	Coupon bonds	700,000,000.00	9.30	Semi-annually	No	No		4-Mar-2015
UA4000138242	Coupon bonds	470,000,000.00	9.30	Semi-annually	No	No		8-Apr-2015
UA4000139513	Coupon bonds	900,000,000.00	9.30	Semi-annually	No	No		13-May-2015
UA4000141600	Coupon bonds	100,000,000.00	9.30	Semi-annually	No	No		3-Jun-2015
UA4000144075	Coupon bonds	600,000,000.00	9.30	Semi-annually	No	No		15-Jul-2015
UA4000146070	Coupon bonds	200,000,000.00	9.30	Semi-annually	No	No		12-Aug-2015
UA4000146500	Coupon bonds	525,000,000.00	9.30	Semi-annually	No	No		9-Sep-2015
UA4000148217	Coupon bonds	329,000,000.00	9.30	Semi-annually	No	No		28-Oct-2015
UA4000149082	Coupon bonds	580,000,000.00	9.30	Semi-annually	No	No		11-Nov-2015
UA4000151500	Coupon bonds	557,000,000.00	9.19	Semi-annually	No	No		13-Jan-2016
UA4000160634	Coupon bonds	60,000,000.00	9.10	Semi-annually	No	No		16-Mar-2016
UA4000129233	Coupon bonds	850,000,000.00	8.75	Semi-annually	No	No		10-Aug-2016
UA4000129118	Coupon bonds	1,940,000,000.00	8.75	Semi-annually	No	No		28-Sep-2016
UA4000177406	Coupon bonds	477,000,000.00	9.50	Semi-annually	No	No		16-Nov-2016
UA4000129241	Coupon bonds	1,000,000,000.00	9.25	Semi-annually	No	No		15-Sep-2021
Total		12,723,100,000.00		,				
Government foreign-	-currency bonds							
UA4000157135	Coupon bonds	3,503,010,000.00	7.97	Semi-annually	No	No		23-Jul-2014
UA4000158794	Coupon bonds	1,805,122,500.00	7.50	Semi-annually	No	No		10-Sep-2014
UA4000174247	Coupon bonds	975,552,540.00	4.80	Semi-annually	No	Yes	29-0ct-2014	29-0ct-2014
UA4000149231	Coupon bonds	1,454,678,520.00	8.32	Semi-annually	No	No	20 001 2011	19-Nov-2014
UA4000173058	Coupon bonds	1,191,500,000.00	7.75	Semi-annually	No	No		26-Nov-2014
UA4000177133	Coupon bonds	2,680,875,000.00	7.88	Semi-annually	No	No		10-Dec-2014
UA4000171649	Coupon bonds	1,182,385,025.00	8.25	Semi-annually	No	No		24-Dec-2014
UA4000171049 UA4000151278	Coupon bonds	1,752,601,180.00	8.50	Semi-annually	No	No		7-Jan-2015
UA4000131276	Coupon bonds	229,304,175.00	9.60	Semi-annually	No	No		14-Jan-2015
UA4000155485	Coupon bonds	2,603,427,500.00	8.09	Semi-annually	No	No		11-Feb-2015
	·	595,750,000.00	8.02		No	No		18-Feb-2015
UA4000157143	Coupon bonds			Semi-annually				
UA4000157127	Coupon bonds	588,791,640.00	8.02	Semi-annually	No No	No		25-Feb-2015
UA4000160642	Coupon bonds	2,405,960,205.00	7.75	Semi-annually	No	No		18-Mar-2015
UA4000142699	Coupon bonds	3,714,739,550.00	9.45	Semi-annually	No	No	0.14 0045	22-Apr-2015
UA4000142681	Coupon bonds	650,368,360.00	4.80	Semi-annually	No	Yes	6-May-2015	6-May-2015
UA4000166821	Coupon bonds	3,176,539,000.00	7.75	Semi-annually	No	No		6-May-2015
UA4000141071	Coupon bonds	1,805,742,080.00	9.45	Semi-annually	No	No		27-May-2015
UA4000167837	Coupon bonds	2,069,754,650.00	7.75	Semi-annually	No	No		3-Jun-2015
UA4000142673	Coupon bonds	2,085,125,000.00	4.50	Semi-annually	No	Yes	17-Jun-2015	17-Jun-2015
UA4000144083	Coupon bonds	26,570,450.00	9.45	Semi-annually	No	No		8-Jul-2015
UA4000171409	Coupon bonds	1,243,663,870.00	8.25	Semi-annually	No	No		15-Jul-2015
UA4000152441	Coupon bonds	3,835,438,500.00	8.25	Semi-annually	No	No		27-Jan-2016
UA4000153282	Coupon bonds	106,162,650.00	8.25	Semi-annually	No	No		3-Feb-2016
UA4000160923	Coupon bonds	3,574,500,000.00	7.50	Semi-annually	No	Yes	16-Mar-2016	16-Mar-2016
UA4000160907	Coupon bonds	341,781,775.00	8.00	Semi-annually	No	No		23-Mar-2016
UA4000166847	Coupon bonds	887,071,750.00	8.00	Semi-annually	No	No		25-May-2016
UA4000172506	Coupon bonds	2,690,252,105.00	8.75	Semi-annually	No	No		10-Aug-2016
UA4000177414	Coupon bonds	3,556,627,500.00	7.75	Semi-annually	No	Yes	26-0ct-2016	26-0ct-2016
UA4000177752	Coupon bonds	594,868,290.00	7.75	Semi-annually	No	Yes	30-Nov-2016	30-Nov-2016
UA4000178305	Coupon bonds	1,189,498,280.00	7.75	Semi-annually	No	No		14-Dec-2016
UA4000160915	Coupon bonds	3,574,500,000.00	8.25	Semi-annually	No	No		22-Mar-2017
UA4000166854	Coupon bonds	3,872,375,000.00	7.45	Semi-annually	No	Yes	17-May-2017	17-May-2017
	Coupon bonds	6,314,950,000.00	7.50	Semi-annually	No	No		20-Dec-2017



### Table 6. Outstanding of local-currency government bonds

ISIN	Bond type	Outstanding volume (UAH)	Coupon rate (%)	Payment frequency	Amortisation option	Put option	Next put	Maturity date
UA4000177554	Coupon bonds	2,382,011,055.00	7.50	Semi-annually	No	Yes	21-Nov-2018	21-Nov-2018
Total		68,661,498,150.00						
Grand total	;	281,742,786,550.00						

Note: the list of local-currency government bonds may not be complete as it reflects ICU knowledge regarding the outstanding stock of the government bonds, which is published by Ministry of Finance of Ukraine as its website (http://minfin.gov.ua/control/publish/article/main?art\_id=274776&cat\_id=234036).

Sources: Ministry of Finance, Investment Capital Ukraine LLC.



### 2014 weekly state debt payback

Table 7. Weekly schedule of state bond auctions and volume of state debt\* to be repaid within a 7-day period since auction date (UAH)

Month	Auction details	1st Tuesday	2nd Tuesday	3rd Tuesday	4th Tuesday	5th Tuesday
January	Auction date	1-Jan-13	8-Jan-13	15-Jan-13	22-Jan-13	29-Jan-13
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	0.00
	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.00	0.00
February	Auction date	5-Feb-13	12-Feb-13	19-Feb-13	26-Feb-13	
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	
	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	
	Total	0.00	0.00	0.00	0.00	
March	Auction date	5-Mar-13	12-Mar-13	19-Mar-13	26-Mar-13	
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	
	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	
	Total	0.00	0.00	0.00	0.00	
April	Auction date	2-Apr-13	9-Apr-13	16-Apr-13	23-Apr-13	30-Apr-13
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	0.00
lay une uly	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.00	0.00
May	Auction date	30-Apr-13	7-May-13	14-May-13	21-May-13	28-May-13
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	0.00
	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.00	0.0
June	Auction date	4-Jun-13	11-Jun-13	18-Jun-13	25-Jun-13	
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	
	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	
	Total	0.00	0.00	0.00	0.00	
July	Auction date	2-Jul-13	9-Jul-13	16-Jul-13	23-Jul-13	30-Jul-13
•	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	0.00
July	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.00	0.00
August	Auction date	6-Aug-13	13-Aug-13	20-Aug-13	27-Aug-13	
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	
Aarch April Aay une uly	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	
	Total	0.00	0.00	0.00	0.00	
Sentember	Auction date	3-Sep-13	10-Sep-13	17-Sep-13	24-Sep-13	
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	
	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	
	Total	0.00	0.00	0.00	0.00	
October	Auction date	1-0ct-13	8-0ct-13	15-0ct-13	22-0ct-13	29-0ct-13
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	0.00
	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.00	0.00
November	Auction date	5-Nov-13	12-Nov-13	19-Nov-13	26-Nov-13	
	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	
	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	
	Total	0.00	0.00	0.00	0.00	
December	Auction date	3-Dec-13	10-Dec-13	17-Dec-13	24-Dec-13	31-Dec-13
- 300111001	Local debt repayment <sup>1</sup>	0.00	0.00	0.00	0.00	0.00
	External debt repayment <sup>2</sup>	0.00	0.00	0.00	0.00	0.00
	Total	0.00	0.00	0.00	0.00	0.00

Notes: highlighted data — above UAH1bn in bold font, above UAH4bn shaded in blue; [\*] interest and principal; [1] — government bonds (ordinary bonds, VAT bonds and recapitalisation bonds; [2] — external debt means Eurobonds and loans denominated in local currency by most recent FX rates. Sources: Ministry of Finance of Ukraine, Investment Capital Ukraine LLC.



## 5yr sovereign local debt payback

Table 8. Local-currency bonds repayments for the upcoming 5-year period

	Repayments (UAHm)								Repayments, US dollar equivalent (US\$m)								
	I	Interest			Principal		Total		Interest			Principal			Total		
Period	Ordin- aries	VATs	Recaps	Ordin- aries	VATs	Recaps	Inte- rest	Prin- cipal	Ordin- aries	VATs	Recaps	Ordin- aries	VATs	Recaps	Inte- rest	Prin- cipal	
BY QUA	RTERS																
2Q14	474.1		1,673.7	712.1		1,598.3	3,008.4	2,310.3	39.9		140.9	59.9		134.5	253.2	194.5	
3Q14	2,275.8	135.6	2,551.4	1,922.8	1,643.6	1,500.0	6,401.7 1	11,984.5	191.6	11.4	214.8	161.9	138.3	126.3	538.9	1,008.8	
4Q14	3,552.6		3,371.4	435.8		4,696.5	8,743.1 1	14,442.4	299.0		283.8	36.7		395.3	736.0	1,215.7	
1Q15	2,108.5	90.4	2,169.8	453.7	1,643.6	2,000.0	5,534.1 1	12,973.1	177.5	7.6	182.6	38.2	138.3	168.4	465.8	1,092.0	
2Q15	3,423.3		2,833.2	250.8			7,714.2 1	15,223.1	288.2		238.5	21.1			649.3	1,281.4	
3Q15	2,409.2	45.2	2,560.9	0.8	1,643.6	1,000.0	5,901.6	5,239.6	202.8	3.8	215.6	0.1	138.3	84.2	496.8	441.0	
4Q15	3,329.2		2,961.1	0.8		6,000.0	7,068.1	6,909.8	280.2		249.3	0.1		505.1	595.0	581.6	
1Q16	2,279.9		2,201.9	0.8		2,750.0	5,253.9 1	11,225.7	191.9		185.3	0.1		231.5	442.2	944.9	
2Q16	3,329.2		2,642.4	1,988.3		9,085.0	6,707.1 1	11,960.3	280.2		222.4	167.4		764.7	564.6	1,006.8	
3Q16	2,279.8		2,071.3	80.8		7,135.0	4,784.6 1	12,696.0	191.9		174.4	6.8		600.6	402.7	1,068.7	
4Q16	3,144.0		2,245.7				6,089.7	5,818.0	264.6		189.0				512.6	489.7	
1Q17	2,263.6		1,732.4	2,750.0		1,250.0	4,189.8	7,574.5	190.5		145.8	231.5		105.2	352.7	637.6	
2Q17	3,144.0		2,245.7	7,788.5		6,357.9	5,860.1 1	18,018.8	264.6		189.0	655.6		535.2	493.3	1,516.7	
3Q17	2,061.7		1,673.0	1,810.0		6,550.0	3,781.0	8,360.0	173.5		140.8	152.4		551.3	318.3	703.7	
4Q17	2,572.8		1,895.7	5,212.9		7,658.3	4,794.6 1	19,186.1	216.6		159.6	438.8		644.6	403.6	1,615.0	
1Q18	1,932.3		1,337.9	4,318.9		6,375.0	3,316.5 1	10,693.9	162.7		112.6	363.5		536.6	279.2	900.2	
2Q18	2,200.1		1,435.9	11,845.3		7,157.9	3,725.3 1	19,003.3	185.2		120.9	997.1		602.5	313.6	1,599.6	
3Q18	1,623.5		1,011.1	5,101.3		10,145.1	2,680.8 1	15,246.5	136.7		85.1	429.4		854.0	225.7	1,283.4	
4Q18	1,355.5		1,066.2	5,108.8		4,655.3	2,511.0 1	12,146.1	114.1		89.7	430.0		391.9	211.4	1,022.4	
BY YEA	RS																
2014	6,302.5	135.6	7,596.6	3,070.7	1,643.6	7,794.8	18,153.2 2	28,737.3	530.5	11.4	639.4	258.5	138.3	656.1	1,528.0	2,419.0	
2015	11,270.2	135.6	10,525.1	706.0	3,287.2	9,000.0	26,217.9	40,345.5	948.7	11.4	886.0	59.4	276.7	757.6	2,206.9	3,396.1	
2016	11,032.9		9,161.4	2,069.8		18,970.0	22,835.2	41,700.0	928.7		771.2	174.2		1,596.8	1,922.2	3,510.1	
2017	10,042.2		7,546.8	17,561.3		21,816.2	18,625.4 5	53,139.3	845.3		635.2	1,478.2		1,836.4	1,567.8	4,473.0	
2018	7,111.4		4,851.1	26,374.4		28,333.4	12,233.6 5	57,089.8	598.6		408.3	2,220.1		2,385.0	1,029.8	4,805.5	

Notes: Ordinaries - the government bonds sold via auctions; VATs - VAT bonds; Recaps - recapitalisation bonds.

Sources: Ministry of Finance, Investment Capital Ukraine LLC.



## 5yr sovereign external debt payback

Table 9. Foreign-currency debt\* (Eurobonds and loans) repayments for the upcoming 5-year period

		Repaym	ents, hryvnia	equivalent	(UAHm)	Repayments, US dollar equivalent (US\$m)							
	Intere	est	Princ	ipal	Tot	al	Intere	est	Princi	ipal	Tot	al	
Period	Eurobond	Loan	Eurobond	Loan	Interest	Principal	Eurobond	Loan	Eurobond	Loan	Interest	Principal	
BY QUART	ERS												
2Q14	2,816.8	917.5	11,660.8	2,013.8	3,734.3	13,674.6	241.6	78.7	1,000.0	172.7	320.2	1,172.7	
3Q14	2,975.7	1,191.5	0.0	10,422.0	4,167.2	10,422.0	255.2	102.2	0.0	893.8	357.4	893.8	
4Q14	3,819.0	1,608.2	0.0	11,332.6	5,427.2	11,332.6	327.5	137.9	0.0	971.9	465.4	971.9	
1Q15	2,975.7	961.4	0.0	10,015.2	3,937.1	10,015.2	255.2	82.5	0.0	858.9	337.6	858.9	
2Q15	3,819.0	1,222.6	0.0	15,002.3	5,041.6	15,002.3	327.5	104.8	0.0	1,286.6	432.4	1,286.6	
3Q15	2,975.7	622.0	5,830.4	2,233.8	3,597.7	8,064.2	255.2	53.3	500.0	191.6	308.5	691.6	
4Q15	3,819.0	701.3	41,143.6	990.7	4,520.4	42,134.3	327.5	60.1	3,528.4	85.0	387.7	3,613.3	
1Q16	2,775.3	563.2	0.0	7,690.3	3,338.5	7,690.3	238.0	48.3	0.0	659.5	286.3	659.5	
2Q16	2,792.0	697.6	14,576.0	868.1	3,489.6	15,444.2	239.4	59.8	1,250.0	74.5	299.3	1,324.5	
3Q16	2,775.3	259.5	0.0	2,632.9	3,034.8	2,632.9	238.0	22.3	0.0	225.8	260.3	225.8	
4Q16	2,336.5	662.9	11,660.8	5,227.1	2,999.4	16,887.9	200.4	56.8	1,000.0	448.3	257.2	1,448.3	
1Q17	2,775.3	144.3	0.0	3,498.2	2,919.6	3,498.2	238.0	12.4	0.0	300.0	250.4	300.0	
2Q17	1,952.8	460.3	0.0	3,789.8	2,413.2	3,789.8	167.5	39.5	0.0	325.0	206.9	325.0	
3Q17	2,775.3	0.0	30,318.1	0.0	2,775.3	30,318.1	238.0	0.0	2,600.0	0.0	238.0	2,600.0	
4Q17	1,952.8	319.2	8,162.6	6,180.2	2,272.0	14,342.8	167.5	27.4	700.0	530.0	194.8	1,230.0	
1Q18	1,373.1	0.0	0.0	0.0	1,373.1	0.0	117.8	0.0	0.0	0.0	117.8	0.0	
2Q18	1,677.4	87.4	0.0	0.0	1,764.8	0.0	143.8	7.5	0.0	0.0	151.3	0.0	
3Q18	1,373.1	0.0	0.0	0.0	1,373.1	0.0	117.8	0.0	0.0	0.0	117.8	0.0	
4Q18	1,677.4	87.4	0.0	2,331.2	1,764.8	2,331.2	143.8	7.5	0.0	199.9	151.3	199.9	
BY YEARS													
2014	9,611.5	3,717.2	11,660.8	23,768.4	13,328.7	35,429.2	824.3	318.8	1,000.0	2,038.3	1,143.0	3,038.3	
2015	13,589.5	3,507.3	46,974.0	28,242.0	17,096.8	75,216.0	1,165.4	300.8	4,028.4	2,422.0	1,466.2	6,450.3	
2016	10,679.0	2,183.2	26,236.8	16,418.3	12,862.2	42,655.2	915.8	187.2	2,250.0	1,408.0	1,103.0	3,658.0	
2017	9,456.2	923.8	38,480.7	13,468.2	10,380.1	51,949.0	810.9	79.2	3,300.0	1,155.0	890.2	4,455.0	
2018	6,100.8	174.8	0.0	2,331.2	6,275.7	2,331.2	523.2	15.0	0.0	199.9	538.2	199.9	

Notes: [\*] debt redemptions include also interest payments; debt comprises Eurobonds, IMF and VTB loans; IMF loan is meant all tranches received in 2008-10; [1] redemption of US\$2bn loan to VTB is a worst-case scenario within this loan agreement, it may be prolonged 2 times and this in effect may shift the redemption to 4Q11 or 2Q12. Sources: Ministry of Finance, IMF, Bloomberg, Reuters, Investment Capital Ukraine LLC.



### Ukraine issuers' credit metrics

Table 10. Ukrainian corporate bond issuers and their key financial figures and ratios\* (US\$m)

Issuer	Ticker	Filing	Reve- nues	EBITDA	Int exp	Cash	ST debt	LT debt	Debt	Net debt	EBITDA mrg (%)	Debt/ EBITDA (x)	Net debt/ EBITDA (x)	EBITDA int cov (x)
Naftogaz of Ukraine	NAFT0	4Q10	11,673.6	502.2	-613.5	333.2	685.2	4,824.9	5,510.1	5,176.9	4.3	11.0	10.3	Neg.
DTEK	DTEKUA	4Q11	4,965.0	1,294.6	60.9	1,304.1	429.4	1,878.3	2,307.7	1,003.6	26.1	1.8	0.8	21.2
MHP	MHPSA	1Q12	1,279.9	416.4	77.2	111.0	210.5	755.3	965.8	854.8	32.5	2.3	2.1	5.4
Metinvest Holding	METINV	4Q11	14,189.0	3,533.0	220.0	792.0	1,147.0	2,834.0	3,981.0	3,189.0	24.9	1.1	0.9	16.1
Avangard	AVINPU	4Q11	553.3	222.1	12.3	237.8	122.5	210.0	332.6	94.8	40.1	1.5	0.4	18.1
Interpipe	INPIP	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Concern Galnaftogaz	GLNGUZ	1Q12	1,647.2	96.8	26.3	13.9	136.9	203.9	340.8	326.9	5.9	3.5	3.4	3.7
Boryspil Int'l Airport	BORYS	1Q12	431.4	277.8	2.3	33.8	108.0	212.5	320.5	286.8	64.4	1.2	1.0	122.0
Ukrtelecom	UTLMUZ	2Q12	2,091.2	470.0	103.5	22.3	177.7	194.3	372.1	349.8	22.5	0.8	0.7	4.5
Mriya Agro Holding	MRIYA	3Q11	344.8	42.6	40.1	192.0	96.0	282.2	378.3	186.3	12.4	8.9	4.4	1.1
Ferrexpo	FXPOLN	4Q11	1,788.0	798.0	43.3	890.2	18.9	951.4	970.4	80.2	44.6	1.2	0.1	18.4
Agroton	AGTPW	2Q11	102.1	10.4	0.3	4.2	19.3	1.0	20.3	16.1	10.2	2.0	1.6	31.0
Agromat	AGROM	2Q11	149.7	28.3	16.0	3.3	23.5	30.1	53.5	50.2	18.9	1.9	1.8	1.8
KSG Agro	KSGPW	3Q11	3.2	1.7	-0.7	5.5	5.6	10.7	16.4	10.9	52.8	9.5	6.4	Neg.
IMC	IMCPW	3Q11	5.6	-2.3	0.2	13.4	4.0	18.1	22.1	8.7	Neg.	Neg.	Neg.	Neg.

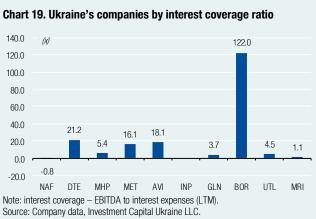
Notes: [\*] financial figures and appropriate ratios are calculated using LTM data; LTM - last 12-month period; Int exp - interest expenses; ST debt - short-term debt; LT debt - long-term debt; int cov - interest coverage.

Sources: Company data, Investment Capital Ukraine LLC.













## **Glossary**

The following is the list of terms, phrases and abbreviations that are frequently used in this report's weekly publications.

**Average duration**, or interchangeably, **bond auction average duration**: Duration calculated from all cash flows obtained from the bonds sold at the auction. Yield-to-maturity, price, and each cash flow (coupons and principal) are calculated on a per-bond basis.

**Average yield**, or interchangeably, **bond auction average yield**: A yield-to-maturity calculated from all cash flows obtained from the bonds sold at the auction and versus the total price paid per bond to acquire them. Price and each cash flow (coupons and principal) are calculated on a per-bond basis.

Basis point, or interchangeably, bp: One-hundredth of a percentage point, or 0.01%.

BoP: Balance of payments.

**Certificate(s)** of **Deposit**, or interchangeably, **CD(s):** Short-term money market instruments that allow the NBU, the central bank, to absorb excess liquidity from the local banks. Their durations are 2, 3, or up to 5 days; two weeks; one month; 1.5 months; two months; and up to three months.

**CDS:** A Credit default swap; a contract that references the performance of a loan or a bond (sovereign, corporate, or municipal). A CDS is normally quoted in basis points, or hundredths of a percent.

**CRA:** Credit rating agency. These include international industry majors Moody's, Standard & Poor's, and Fitch. It could refer also to other credit rating agencies, including Credit-Rating of Ukraine.

**EFSF:** European Financial Stability Facility (http://www.efsf.europa.eu), created on 9 May, 2010 by the euro area member states, as a Luxembourg-registered company owned by Euro Area Member States (EAMS), which has a mandate to lend to the EAMS in times of difficulty, e.g., in bail-outs. For the purpose of its operations, the EFSF is able to issue bonds EAMS-guaranteed for up to €440bn. Thanks to its structure of credit enhancements, including a cash reserve and a loan-specific cash buffer¹, the EFSF has top credit ratings from major CRAs: 'Aaa' by Moody's, 'AAA' by S&P, and 'AAA' by Fitch.

MoE: Ministry of Economy of Ukraine (http://www.me.gov.ua).

MoF: Ministry of Finance of Ukraine (http://www.minfin.gov.ua).

NBU: National Bank of Ukraine, the central bank of Ukraine (http://www.bank.gov.ua).

**Party of Regions**, or interchangeably, **PoR:** The *de facto* ruling political party in Ukraine currently. It won the presidency in the February 2010 presidential elections with a slim margin over Yulia Tymoshenko's Bloc, then consolidated power in the parliament, where it has a majority over minor loyal factions, while incapable of forming a majority itself. The next elections for Parliament and the president's office are expected to take place in 2012 and 2015, respectively.

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<sup>&</sup>lt;sup>1</sup> For instance, in order to lend €17.7bn to Ireland, the EFSF has to raise around €26.5bn from the financial market.



Percentage point, or interchangeably, ppt: one percent, 1%.

**Recaps**, or interchangeably, **recapitalisation bonds**: Local-currency bond(s), representing a general financial obligation by the government on par with other government's financial obligations, which was/were issued with the purpose of recapitalising state-owned entities like Naftogaz of Ukraine, commercial banks from Ukreximbank to Oschadbank, and the State Mortgage Institution (SMI).

**UAH:** Ukrainian national currency, the hryvnia.

**UAH TWI**, or interchangeably, **hryvnia trade-weighted index**: Index of the local currency calculated by Investment Capital Ukraine (ICU), which is calculated upon nominal exchanges rates to the US dollar and headline consumer price inflation indices of Ukraine and its 26 trading partners, which as a whole, comprise a 76% share of merchandise trade turnover. Please refer to *ICU Quarterly Report* "Ukraine's See-saw Puzzle" published on 14 July, 2009 for more details on the methodology of the index. There are nominal and real UAH TWIs, the former based on exchange rates, and the latter based on both exchange rates and inflation. There are monthly and daily UAH TWIs, which are tracked by ICU. Monthly TWI calculation is based on the monthly data for inflation and trade statistics as well as monthly average exchange rates. Daily TWI calculation is based on the monthly data for inflation and trade statistics; however, its core substance is to reflect daily movements of the exchange rates of Ukraine's currency as well as of its key trading partners.

**UAS:** Ukrainian accounting standards.

**VATs**, or interchangeably, **VAT bonds:** Local-currency bond(s), representing a general financial obligation by the government on par with other government's financial obligations, which was/were issued in accordance with the government's initiative to offload the government's accumulated arrears on VAT refunds to domestic exporters.

**Weighted-average duration,** or interchangeably, **bond auction weighted-average duration**: Duration calculated from all cash flows obtained from the bonds sold at the auction. Yield-to-maturity, price, and each cash flow (coupons and principal) are calculated for the total number of bonds sold at the auction.

**Weighted-average yield,** or interchangeably, **bond auction weighted-average yield:** A yield-to-maturity calculated from all cash flows obtained from the bonds sold at the auction and against the total price paid to acquire them. Price and each cash flow (coupons and principal) are calculated for the total number of bonds sold at the auction.

YTM, or interchangeably, yield-to-maturity: The interest rate that creates the present value of cash flows obtained from holding a bond equal to the price of the bond. The YTM factors in coupon income and any capital gain (loss) the investor will realise by holding the bond to maturity. It also takes into consideration the timing of coupon payments and principal repayment, which can be done at the maturity date (for a bullet bond) or in accordance with an amortisation schedule (amortisation bond). The YTM uses an interest-on-interest principle, assuming that coupon income can be reinvested at an interest rate equal to the YTM, and is calculated in accordance with the Ukraine's domestic bond market standard, which is represented by the following formula:

$$Price + AI = \sum_{i=1}^{n} \frac{CF_i}{(1+YTM)^{\frac{t_i}{365}}}$$

where Price and AI are clean price and accrued interest of the bond, respectively, as of the date of purchase; n is the number of cash flows to be obtained by a bond holder;  $CF_i$  is the



cash flow (coupon income, principal repayment) obtained from a bond;  $t_i$  is the number of days between a purchase date and i-th cash flow date, and YTM is yield-to-maturity.

**YTW**, or interchangeably, **yield-to-worst:** The same as yield-to-maturity (YTM); however, it is calculated assuming the worst-case scenario under the terms of a bond issue, e.g., the cash flow is trimmed to the earliest possible bond redemption such as due to a call or a put option, embedded into the bond.



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