Hryvnia prospects in 2018-2022

The end of the shocks era

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Summary

In its 22-year history, the Ukrainian hryvnia has failed to prove its stability as a national currency. That reputation continues to prevail on the market, which applies about a 10pp spread to hryvnia debt instruments vs. USD-denominated securities of the same profile.

We argue that the situation has changed significantly in the last four years, enough so that it allows us to expect much more stable behavior of the Ukrainian currency in the foreseeable future. Firstly, Ukraine's central bank (the NBU) abandoned its peg to the U.S. dollar in 2014, meaning that the step-like pattern of the UAH/USD exchange rate is unlikely to repeat itself. Additionally, the NBU is consistently implementing inflation-targeting and proving its institutional independence by refusing to print money for state budget support. These policies allow us to expect the UAH/USD exchange rate will be defined mostly by the free market, with central bank interventions restricted to smoothening out seasonal fluctuations.

We estimated the annual average exchange rate necessary to balance the ForEx market in Ukraine at our forecasted level of demand for currency (mostly driven by non-critical imports) and its supply (driven by exports, labor remittances and FDI). Our forecast implies an annual UAH depreciation rate of 3-5% in 2018-2022. This generally is in line with the devaluation rate determined by purchasing power parity theory (differentials between future inflation in Ukraine and the U.S.), assuming the NBU will be committed to inflation targeting.

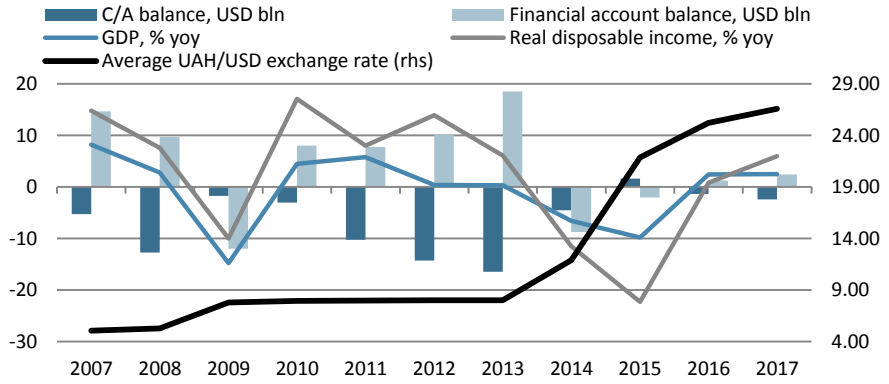
Our forecasts assume Ukraine's continuing cooperation with the IMF, which is essential for the country to keep gross reserves at a safe level for 2018-2019. We also modeled a stress-case scenario that assumes no support from the IMF this year. In this case, devaluation will exceed the safe level of 3-5% in 2019 and the exchange rate will land at UAH 32.00/USD by the end of 2018 (vs. UAH 29.50/USD under the base-case scenario) and at UAH 32.50/USD by the end of 2019 (vs. UAH 30.50/USD under the base-case scenario).

Seeing low chances for a stress scenario, we recommend investing in UAH-denominated instruments (local sovereign bonds, Ukreximbank UAH international Eurobond) that trade at a 8-15pp spread to comparable dollar instruments.

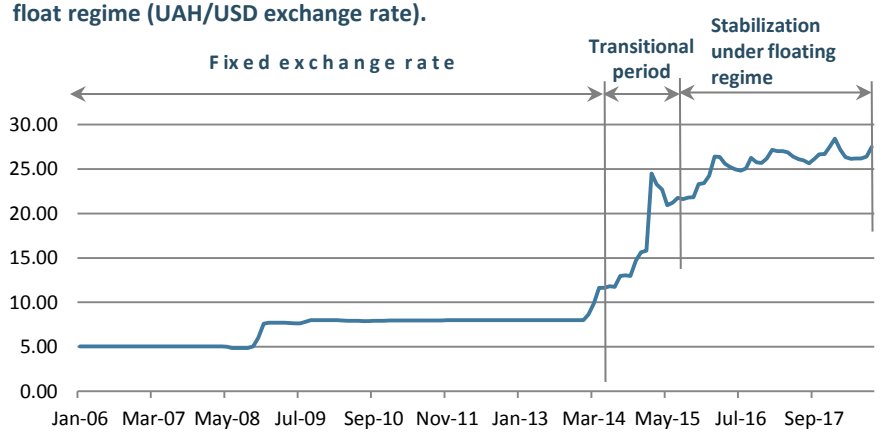
UAH/USD outlook

	2016	2017	2018E	2019E	2020E	2021E	2022E
Average rate	25.55	26.60	27.53	28.68	29.90	31.04	32.16
UAH devaluation		3.9%	3.4%	4.0%	4.1%	3.7%	3.5%

Hryvnia devaluation went along with economic collapse.



In the last three years, the hryvnia has moderately devaluated under the free float regime (UAH/USD exchange rate).



Source: NBU, UkrStat, Concorde Capital research

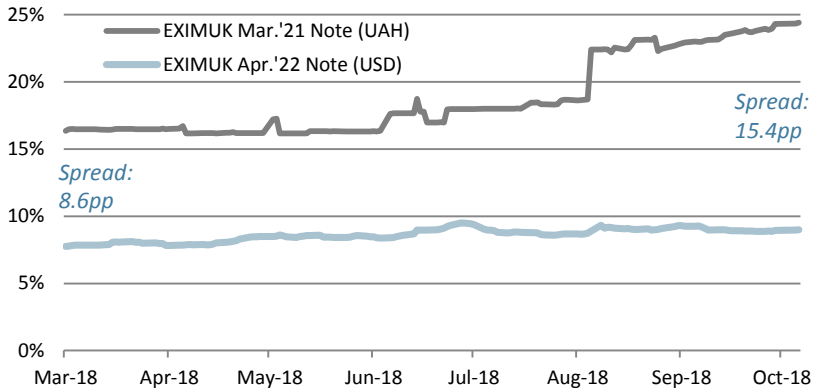
UAH-denominated instruments: undervalued vs. USD-denominated peers

Based on our conclusions about UAH/USD rate prospects (the hryvnia's devaluation won't exceed 5% p.a., on average), we recommend investing into local currency instruments, whose spread against USD-denominated paper exceeds 5pp by far for any maturity:

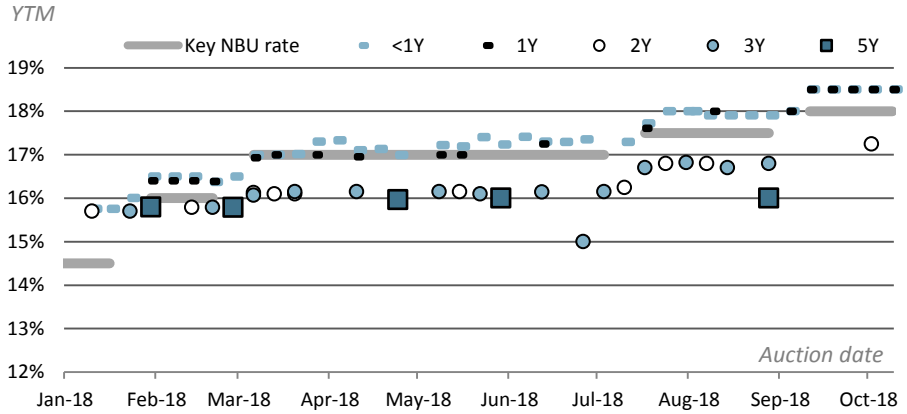
- International UAH bonds of Ukreximbank offer a 15.4pp spread to the bank's USD Eurobond curve. We see few reasons for such a wide spread to sustain itself in the short term.

- Local UAH bonds of MinFin offer up to 12pp higher yield than the USD-denominated international bonds of MinFin (UKRAIN). Their pricing primarily depends on the central bank's key policy rate, currently at 18%. For as long as the central bank will not cut this rate (which we expect at least by the end of 2018), local currency bonds will continue to offer a great spread to USD paper. Part of the spread (about 2-3pp) can be attributed to limited access of non-residents to local paper (which is not clearable internationally). But that hurdle is likely to be eliminated in the near future as the Ukrainian government is close to signing a deal with Clearstream.

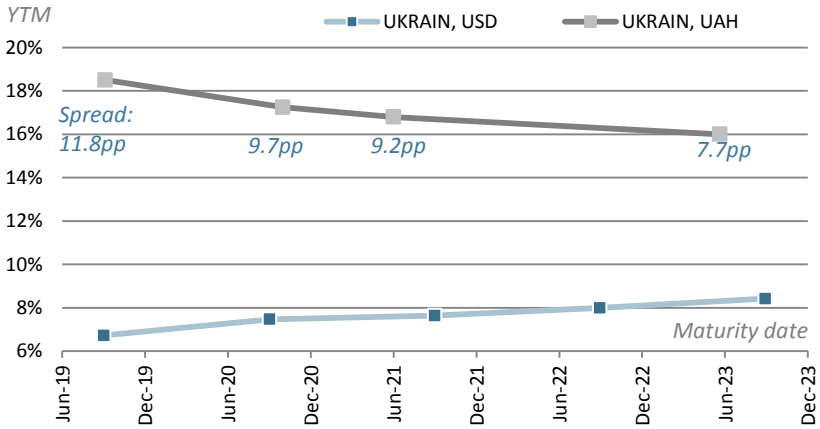
YTM of Ukreximbank international notes, 2018



YTM of Ukrainian UAH local bonds at primary auctions vs. NBU key rate, 2018



YTM of Ukrainian sovereign bonds: international (USD, Oct. 11) vs. local (UAH, @ last primary auction)



Source: Bloomberg, NBU, MinFin, Concorde Capital research

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UAH/USD trends: currency shocks are less likely to resurface

Lessons from the past: 2008-2009 hryvnia collapse

Background: C/A deficit enlargement amid booming consumption, high capital inflow
Ukraine's currency crisis of 2008-2009, in which the hryvnia devalued by 35%, was preceded by a ballooning C/A deficit in 2007-2008. Surging imports (mostly of consumer goods) caused the C/A deficit to swell to USD 12.8 bln (6.8% of GDP) in 2008 from USD 5.3 bln (3.5% of GDP) in 2007. Until 4Q08, the C/A deficit was compensated by ample currency inflow under the financial account. The overall balance of payments had been in surplus, relieving devaluation pressure on the hryvnia.

Crisis catalysts: capital flight and export shock amid commodity price collapse
Trouble came when the financial account balance switched from a USD 6.1 bln surplus in 3Q08 to a deficit of USD 5.6 bln in 4Q08 amid the evolving global financial crisis. Such a "double deficit" (of current and financial accounts) resulted in sharp hryvnia depreciation in 4Q08.

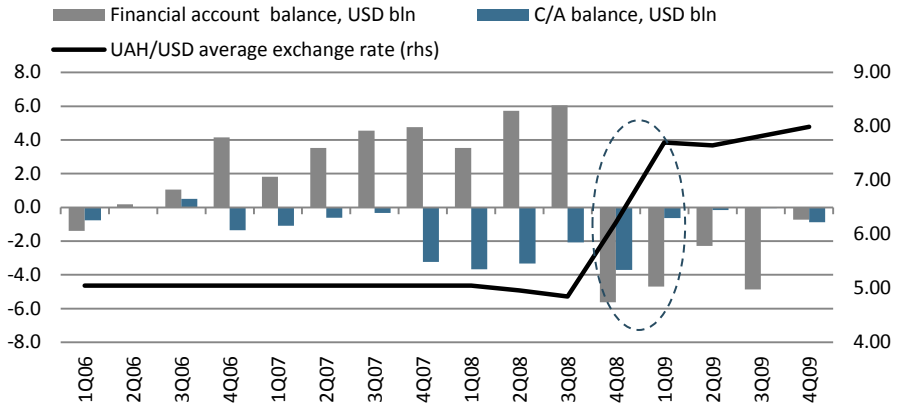
The "export shock" occurred when Ukraine's exports of goods and services dropped 35.5% yoy in 1Q09 amid plummeting world commodity prices. This shock was the major reason of continuing hryvnia depreciation in 1Q09, magnifying the effect of outflows on the financial account.

Our outlook on these identified risk factors in 2018-2022:

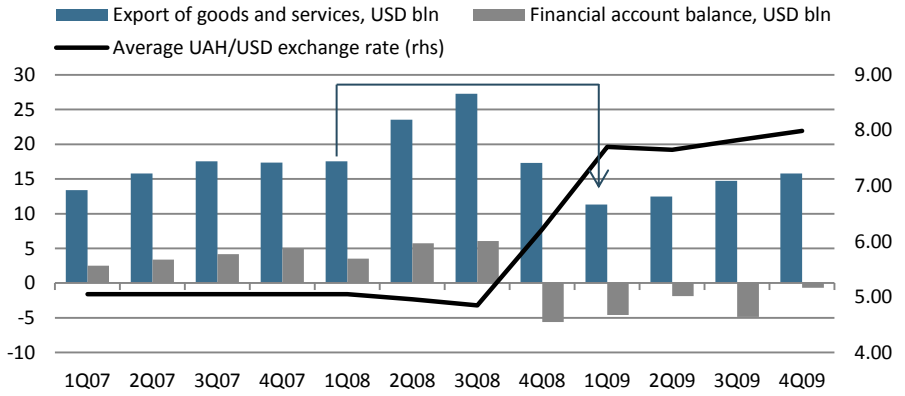
Restrained C/A deficit growth. The C/A deficit will keep the hryvnia under devaluation pressure in 2018-2022. However, the deficit growth will be moderate, and this will help to avoid substantial hryvnia depreciation. The risk of deficit enlargement will increase in 2020, when Ukraine's export of services may drop due to the expiration of its gas transit contract with Gazprom.

Moderate foreign capital movements. In recent years, the financial account surplus has been far below the peaks of 2007-2008. With the ongoing Russian military aggression, Ukraine is not likely to see increased streams of foreign capital in the near future. In addition, under global lending tightening, the financial markets will not disburse easy money as they did during the 2000s boom cycle or during quantitative easing. That said, there is too little capital to engage in any flight from Ukraine to begin with, regardless if any significant global crisis emerges.

Massive currency outflow under the financial account amid a high C/A deficit resulted in sharp hryvnia depreciation in 4Q08.



"Export shock" (36% yoy plunge) caused further hryvnia devaluation in 1Q09.



Source: NBU, UkrStat, Concorde Capital research

Lessons from the past: 2014 hryvnia collapse

Background: C/A deficit enlargement, fixed exchange rate at the cost of burning reserves

Ukraine's second major currency crisis involved the hryvnia devaluating by 33% in 2014. It was preceded by the government deliberately allowing the C/A deficit to swell in 2011-2013, while abstaining from devaluing the national currency and propping up a de facto fixed exchange rate at the expense of shrinking gross reserves. As a result, starting in late 2012, Ukraine's gross reserves were below the recognized safe level of three months of imports.

Crisis catalysts: sudden worsening of capital account, dumping the fixed rate regime

Devaluation pressure became unbearable as soon as a "double deficit" (simultaneous deficit of current and financial accounts) surfaced in 1Q14, leaving the government with no choice but to release the hryvnia to devalue. Had the government allowed the hryvnia to float as early as in 2011, when gross reserves began their consistent decline, the market would have balanced out swelling imports and the devaluation would have been more gradual and smooth. (In **Appendix** 1, we present our modeling results that show that under a floating exchange rate, the hryvnia would have devalued by around 27% during 2011-2013. This would have helped to alleviate the devaluation shock in 2014.)

Our outlook on these risk factors in 2018-2022:

Returning to a fixed exchange rate regime is hardly possible. Since 2014, the hryvnia has been under a free float regime.

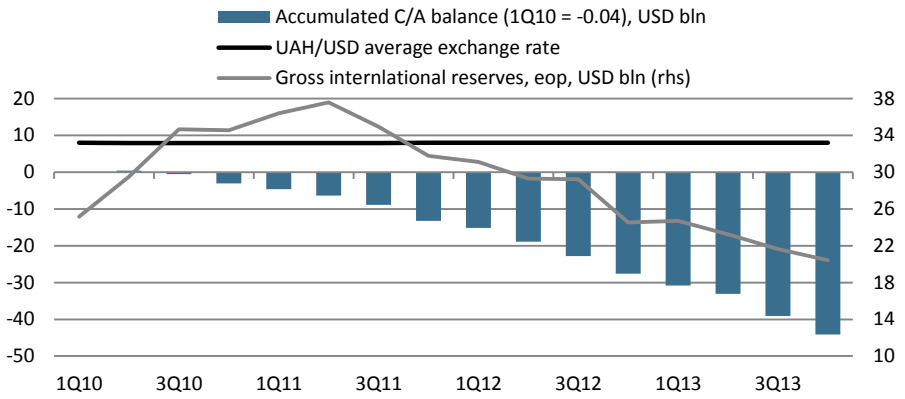
Central bank has ready instruments to prevent the capital account from worsening.

During the currency crisis of 2014-2015, Ukraine's central bank developed and tested a whole range of regulations aimed at reducing demand for foreign currency. Should the hryvnia fall under pressure again, the NBU is likely to resort to those instruments rather than fixing the exchange rate.

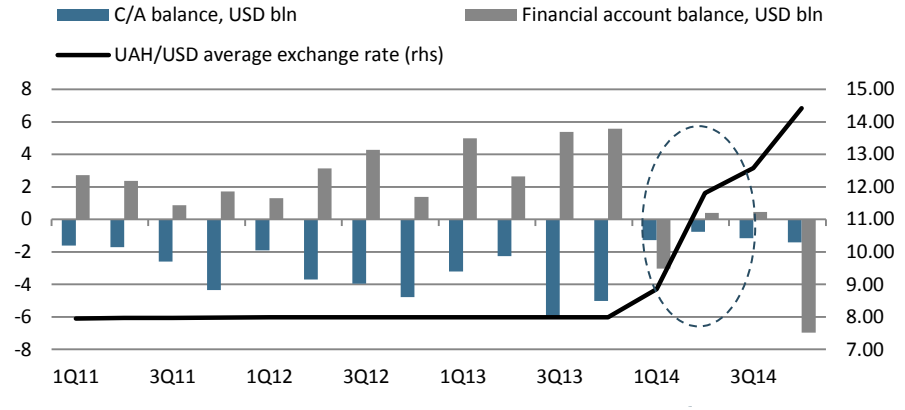
Heightened risk of gross reserves falling below the safe level in 2018. IMF deal to neutralize the risk.

We see heightened risks of gross reserves falling below the recognized safe level in 2018. The main factor that can stop the decline is an IMF loan tranche, which is critical for bringing Ukraine's gross reserves back above the safe level and restoring foreign borrowing. On Slide 15, we outlined a stress-case scenario that models the situation on the ForEx in 2018-2019 in the event of failure to secure the next IMF loan tranche.

Amid a growing C/A deficit in 2011-2013, a fixed exchange rate was maintained at the expense of shrinking gross international reserves.



UAH sharply devaluated amid a "double deficit" as soon as a floating exchange rate was introduced in Feb. 2014.



Source: NBU, Concorde Capital research

Lessons from the past: 2015 hryvnia collapse

Background: falling reserves and hryvnia printing

Amid the transition towards a floating exchange rate in 1Q14, the Ukrainian government made attempts to cool an accelerating hryvnia collapse by drawing from the NBU's gross reserves to alleviate rising devaluation pressure. At the same time, the economy was flooded with hryvnias being printed by the NBU, which was refinancing the banking system and buying UAH-denominated debt. Much of the newly issued hryvnia was channeled to the ForEx, boosting demand for foreign currency even higher.

Crisis catalyst: export losses

The hryvnia lost 46% of its value in 2015, which was "catalyzed" by sharp export losses in 4Q14 and 1H15. This time, the "export shock" was caused by the Russian military aggression and the loss of industrial assets located on the occupied territories. Plummeting export receipts (-30% yoy) and financial account outflows soaked up foreign currency. Rapid hryvnia depreciation in 2014 resulted in falling imports and a reduced C/A deficit, but the abrupt fall in exports, coupled with negative consequences of reserves spending and hryvnia printing, caused another big jump of the exchange rate in 1Q15.

The 2015 currency crisis was caused mostly by factors that were already present in previous currency crises, with the added factor of excessive hryvnia printing.

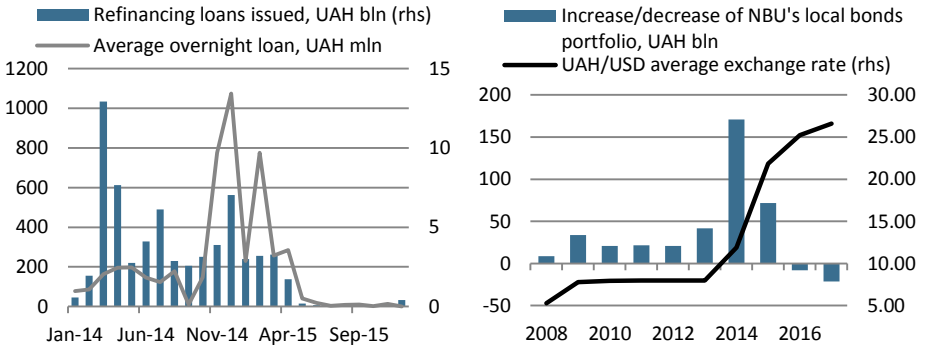
Our outlook on these risk factors in 2018-2022:

NBU should be able to keep its independence.

Over the last two years, the NBU has abstained from massive hryvnia injections. We can't be sure that the easy option of money printing will never return to the minds of Ukrainian authorities. The 2019 presidential and parliamentary elections might present this risk as the government might resort to boost social spending. With the weak economy unable to generate sufficient revenue for higher budget expenditures, the temptation could arise to crank up the printing press to monetize the fiscal deficit. Yet we believe the NBU will manage to protect its independence and resist political pressure.

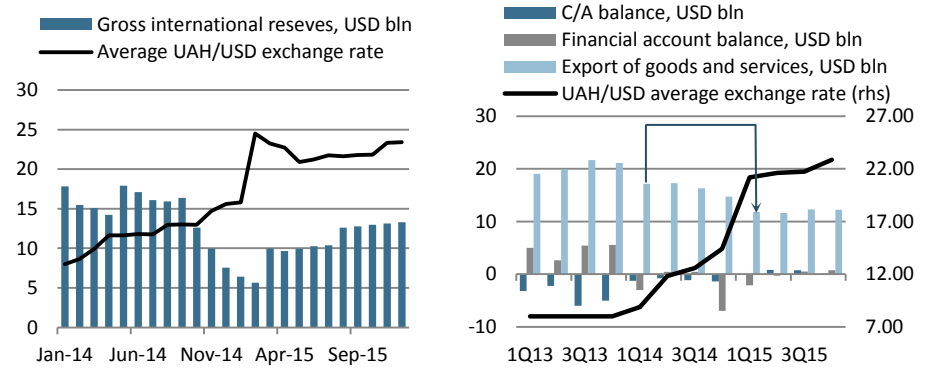
In 2016, the NBU introduced a regime of inflation-targeting with the goal of maintaining consumer inflation of 4-6% in the mid-term. At the moment, this policy assumes a tight monetary policy and printing money would undermine this agenda. Therefore, any calls for monetizing the budget deficit will be viewed as an infringement of the NBU's independence.

Newly printed hryvnia were disbursed to the market in 2014.



Gross reserves were tapped to restrain devaluation in 2014.

"Export shock" (30% yoy decline) caused sharp hryvnia devaluation in 2015.



Source: NBU, UkrStat, Concorde Capital research

Without external shocks, probability of currency shock is low.

Factors that predetermined/catalyzed crisis	*Applied to year*			*Risk for*	*Outlook for 2018-2022*
	2008	**2014**	**2015**	**2018-22**	
Sharp widening of BoP deficit due to:					
Current account (C/A) issues:					
Historically high C/A deficit	Y	Y	-	Low	The C/A deficit is now below 3% of GDP. A smooth UAH devaluation (by 3-5% p.a.) should keep the deficit at a safe level.
and/or					
Sharp C/A deficit widening on export shock	Y	-	Y	Medium	This is a risk for 2020 owing to reduced proceeds from gas transit services. But it won't be something unexpected. "Black swans" are always a risk.
and					
Emerging capital account deficit due to:					
Flight of foreign investment	Y	Y	-	Low	The low amount of foreign investment to begin with is not liquid enough to amount to a flight. The key items (e.g. TNC dividends) are under the NBU's limits. Reforms and privatization can improve FDI in 2020-2022.
and/or					
Excess demand for foreign currency on heavy UAH printing	-	Y	Y	-	The NBU has stopped printing money as it has asserted its independence and implemented inflation-targeting.
and/or					
Large foreign debt repayment, limited ability to refinance	-	-	Y	High	Foreign debt repayment is the biggest issue now. IMF cooperation should alleviate this risk for 2018-2019. A new IMF-type program may be needed in 2020.
and/or					
Accumulated devaluation potential released after abandonment of fixed rate regime	Y	Y	-	Low	The NBU is unlikely to return to a fixed-rate regime. At the same time, some attempts to return to short-term fixing of the rate in 2019, amid elections in Ukraine, should not be ruled out.

Source: Concorde Capital research

Mid-term hryvnia prospects: 3-5% decline per year

The theory of **relative purchasing power parity** assumes that the effect of a price differential (or the difference in consumer inflation) must be eliminated through exchange rate differentials, which means any gain on price differences must be compensated by losses in foreign exchange rates. For the UAH-USD pair, therefore, the depreciation rate must be measured as the difference in inflation rates in Ukraine and the U.S.:

$$DEPR^{UAH/USD} = i_{UA} - i_{USD},$$

where i_{UA} – annual inflation rate in Ukraine, and
i_{USD} – annual inflation rate in the U.S.

The NBU's current inflation target policy assumes that the mid-term inflation target range of 4-6% should be attained by the end of 2019. Meanwhile, we assume annual U.S. consumer inflation will not exceed 2.5% in a five-year period. Therefore, we argue that annual hryvnia depreciation of 3-5% should be taken as a feasible estimate for decision-making.

To underpin this estimate, we developed a model to derive the average UAH/USD exchange rates in 2018-2022. First, we estimated FCY inflows and outflows and developed Ukraine's foreign currency balance for 2018-2022. Our major assumptions and modeling results are presented in **Appendix 2**.

We find that the C/A deficit will keep the Ukrainian hryvnia under devaluation pressure during the forecast period. For the most of the period, the foreign currency inflow will be scarce and it will allow keeping gross reserves at just around the critical level of three months of imports. The market will periodically encounter shortages in foreign currency, pushing the exchange rate upwards.

Having the estimates for external accounts in 2018-2022, we identified foreign currency inflows and outflows that go through Ukraine's ForEx and we estimated how the UAH/USD exchange rate will become balanced for each year of this period. Our hypothesis was supported by the modeling results based on purchasing power parity. That is, the annual UAH/USD depreciation rate will amount to 3-5% in 2018-2022.

Ukraine-U.S. price differential will not exceed 4% in 2019-2022.

	2018E	2019E	2020E	2021E	2022E
NBU consumer inflation forecast/target, %	8.9	4.0-6.0	4.0-6.0	4.0-6.0	4.0-6.0
U.S consumer inflation (IMF forecast), %	2.5	2.4	2.1	2.0	2.1
Price differential, pp	**6.4**	**1.6-3.6**	**1.9-3.9**	**2.0-4.0**	**1.9-3.9**

In 2018-2022, UAH annual depreciation will not exceed 5%.

	2014	2015	2016	2017	2018E	2019E	2020E	2021E	2022E
UAH/USD, average	11.89	21.84	25.55	26.60	27.53	28.68	29.90	31.04	32.16
UAH/USD, eop	15.77	24.00	27.19	28.07	29.50	30.50	31.50	32.50	33.50
UAH depreciation	32.8%	45.6%	14.5%	3.9%	3.4%	4.0%	4.1%	3.7%	3.5%

Source: NBU, Concorde Capital research

Risks

We see the following risks to our forecast of the hryvnia/ U.S. dollar exchange rate:

1. Increased political pressure on the central bank/ loss of the NBU's independent status.

Our projections are based on the assumption that Ukraine's ForEx market will be functioning under the floating exchange regime, and any NBU interventions will be limited and well reasoned. We also assume that the central bank will abstain from money printing for monetizing the fiscal deficit or engaging in massive recapitalization of the banking system.

However, we can't rule out a situation in which pressure on the NBU from competition between political forces would result in the loss of the NBU's independence and the use of non-market instruments for fixing "undesirable" trends in the exchange rate. Should this happen, our projections won't be viable.

2. The absence of lending from the IMF and other IFIs.

Our base-case scenario assumes active cooperation of Ukraine with the IMF and other IFIs throughout the forecast period. This lending should not only help to stay current with debt payments. Enabling Ukraine's access to the global debt market is critical for getting smoothly through the debt-burdened next year. On Slide 15, we outline a stress-case scenario that shows that hryvnia devaluation will exceed 3-5% if Ukraine doesn't receive USD 1.9 bln in lending from the IMF, as well as USD 1.4 bln from the EU and the World Bank by the end of 2018.

3. Political crisis/ essential digression from current economic policy.

There is a risk of the government abandoning its current economic policy and Western integration processes after the presidential and parliamentary elections in 2019. Amid public dissatisfaction with poor economic conditions and slow progress in reforms, the political forces with populist agenda might succeed. In which case, the loss of the NBU's independent status will be only a matter of time. Budget constraints will be softened, threatening cooperation with the IMF. Should this risk become fulfilled, our assumptions for the base-case scenario will not hold and our projections will be completely undermined, possibly along with the hryvnia's stability as well.

Estimating UAH/USD exchange rate in 2018-2022

Ways to deal with foreign currency deficit

We see three ways Ukraine can deal with its foreign currency deficit in 2018-2022:

1. Finance the deficit from gross international reserves
2. Devalue the national currency in order to reduce demand for foreign currency (imports and foreign borrowing)
3. Default on foreign debt payment

In our analysis, we assume that defaulting on payments in foreign currency is not an option. The massive foreign debt restructuring during the 2015 economic collapse included the write-off of USD 3 bln out of USD 19.3 bln state foreign debt, while the rest was restructured with postponed payments and reduced interest rates. Therefore, we assume that the worst-case scenario is likely to entail another restructuring and talks with lenders rather than default per se.

In our analysis, we suppose that some FCY inflows go directly to gross foreign reserves, bypassing the ForEx, and therefore don't participate in the formation of the exchange rate. By the same token, some of the country's payments in foreign currency are made directly from the reserves and do not need to be "generated" by the ForEx. Any foreign currency deficit which occur on the ForEx, will be balanced out through the depreciation of Ukraine's national currency.

Our assumptions regarding the distribution of FCY flows are summarized in the table below:

International reserves	**ForEx**
• IMF loan • state debt in foreign currency • interest on state debt in foreign currency	• C/A components (excluding interest on foreign debt payments) • FDI and portfolio investment • lending/repayments to international financial institutions (other than IMF) • corporate & banking debt payments

Deriving formula for UAH-USD exchange rate

To estimate the average UAH/USD exchange rate for a given year of the forecast period, we employed the following parameters:

UAH/USD exchange rate	Average UAH-USD exchange rate in a given year
$X^{\$}$	Exports in USD
$I^{Cr\$}$	"Critical imports" in USD – the part of imports that is critical for Ukraine's economy, with its physical volume is inelastic to the exchange rate. It includes imported natural gas, fuel consumed by the agricultural sector, nuclear fuel, and some agricultural fertilizers.
$Inc^{\$}$	C/A primary and secondary income balance in USD increased by interest paid on debt in foreign currency.
$I^{NoCr₴}$	"Non-critical imports" in UAH – the part of imports elastic to the exchange rate. As a starting estimate, we took non-critical imports in 2017 (the difference between total imports and critical imports) multiplied by the average UAH/USD exchange rate. For consecutive years, we multiply the received $I^{NoCr₴}$ for 2017 by the projected growth rate.
$C/A^{\$}$	C/A balance in USD.
$F/A^{\$}$	The balance of BoP financial account flows in USD that goes through the ForEx.

For deriving the UAH/USD exchange rate, we employ the modified equation of C/A balance:

$$C/A^{\$} = X^{\$} - (I^{Cr\$} + \frac{I^{NoCr₴}}{\textbf{UAH/USD Exchange rate}}) + Inc^{\$}.$$

We assume that $C/A^{\$}$ should be equal to $F/A^{\$}$ (with the opposite sign). In other words, if the flows under the financial account generate a certain surplus on the ForEx, we can "afford" a C/A deficit equal to this surplus (by absolute value), while the ***UAH/USD exchange rate*** will balance out spending on $I^{NoCr₴}$ to an "affordable" level. Therefore, our model for deriving the average exchange is based on the following formula:

$$\textbf{UAH/USD exchange rate} = I^{NoCr₴}/(X^{\$} + Inc^{\$} - F/A^{\$} - I^{Cr\$}).$$

Our estimations for $F/A^{\$}$ are presented in the table below:

USD, bln	**2018E**	**2019E**	**2020E**	**2021E**	**2022E**
FDI	2.0	2.0	3.0	3.5	3.5
Portfolio investment	1.2	1.0	1.5	1.5	2.0
IFIs	0.7	1.3	1.0	0.5	0.5
Corporate&Banking debt inflow/outflow	-2.4	-1.2	-0.3	0.6	0.7
NBU net currency purchase on ForEx	-0.3	0.0	-0.2	-1.2	-1.8
$F/A^{\$}$	**1.2**	**3.1**	**5.0**	**4.9**	**4.9**

Source: NBU, Concorde Capital research

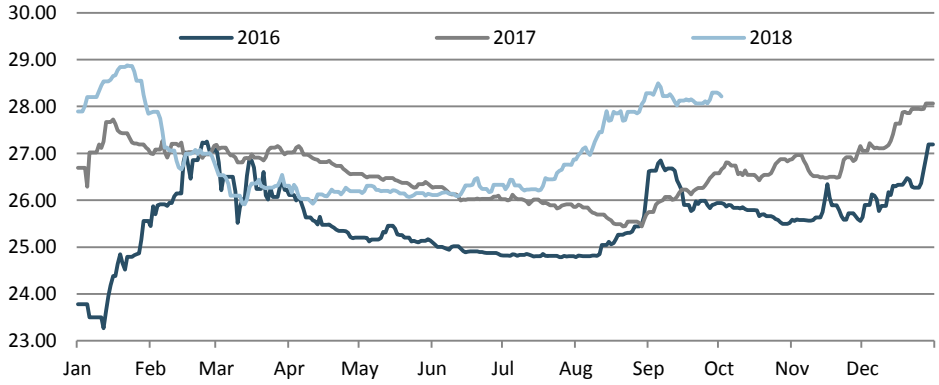
Projection results: annual depreciation will not exceed 5%

The results of our modeling for deriving the UAH/USD exchange rate in 2018-2022 are presented in the table below:

	2017	2018E	2019E	2020E	2021E	2022E
Exports, USD bln ($X^{\$}$)	53.8	60.4	65.9	68.7	73.0	76.6
Critical imports, USD bln ($I^{Cr\$}$)	5.8	6.4	7.0	7.4	7.7	8.1
Non-critical imports, UAH bln ($I^{NoCr₴}$)	1,505	1,740	2,030	2,270	2,485	2,675
Primary and secondary income balance, adjusted, USD bln ($Inc^{\$}$)	7.0	8.0	8.8	9.6	9.9	9.8
$F/A^{\$}$, USD bln	-1.6	-1.2	-3.1	-5.0	-4.9	-4.9
UAH/USD average exchange rate	**26.60**	**27.53**	**28.68**	**29.90**	**31.04**	**32.16**
Annual UAH depreciation rate	*3.9%*	*3.4%*	*4.0%*	*4.1%*	*3.7%*	*3.5%*

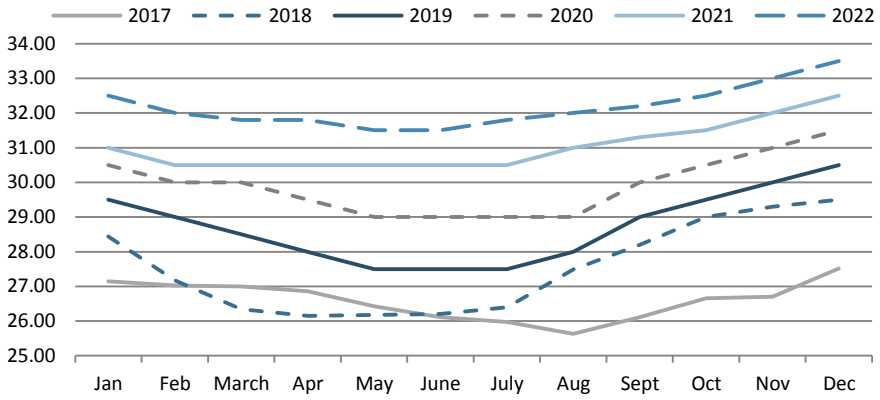
As the modeling results suggest, annual hryvnia devaluation in the forecast period will not exceed 5%.

Seasonality of the UAH/USD exchange rate during a given year



For each year of the forecast period, we also projected monthly exchange rates.

Exchange rate seasonality within a year will remain, but will smoothen out in 2021-2022.



	2017	2018E	2019E	2020E	2021E	2022E
UAH/USD exchange rate, average	26.60	27.53	28.68	29.90	31.04	32.16
UAH/USD exchange rate, eop	28.07	29.50	30.50	31.50	32.50	33.50

Source: NBU, Concorde Capital research

Stress-case scenario: No IMF loan in 2018

Our base-case model assumes receiving USD 1.9 bln in lending from the IMF, as well as USD 1.4 bln from the EU and the World Bank by the end of 2018. We emphasize that this financing is critical for getting through the debt-burdened year of 2019 without major losses in the hryvnia's value.

We modeled a stress-case scenario to estimate hryvnia devaluation assuming Ukraine is not able to secure the aforementioned financing of USD 3.3 bln. We made the appropriate alterations to our base-case scenario and estimated hryvnia devaluation in 2018-2019 under this scenario

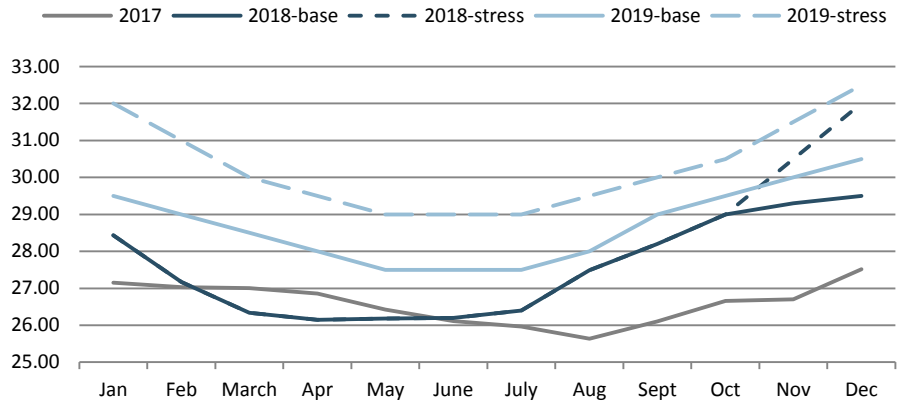
USD, bln	2018E	2019E
FDI	2.0	2.0
Portfolio investment	1.2	0.5
IFIs	0.0	0.0
Corporate & banking debt inflow/outflow	-2.4	-1.2
NBU net currency purchase on ForEx	-0.3	0.0
F/A$	**0.5**	**1.3**

	2017	2018E	2019E
UAH/USD exchange rate, average	26.60	27.92	30.23
UAH/USD exchange rate, eop	28.07	32.00	32.50

The results of our model imply that without IMF and other related IFI financing, we are likely to face accelerated hryvnia devaluation in 2H18 and 2019 than our base-case scenario suggests. In particular, the hryvnia would devalue 8.4% in 2H18 (vs. 5.6% under the base-case scenario). In 2019, the hryvnia would devalue 7.7% (vs. 4.0% under the base-case scenario).

	2018E	2019E
Export, USD bln ($X^{\$}$)	60.4	65.9
Critical import, USD bln ($I^{Cr\$}$)	6.4	7.0
Non-critical import, UAH bln ($I^{NoCr\$}$)	1,745	2,085
Primary and secondary income balance, adjusted, USD bln ($Inc^{\$}$)	8.0	8.8
$F/A^{\$}$, USD bln	-0.5	-1.3
UAH/USD average exchange rate (***UAH/USD Exchange rate***)	**27.92**	**30.23**
Annual depreciation rate	*-4.7%*	*-7.7%*

In the absence of IMF financing, hryvnia devaluation will accelerate through the end of 2018 and in 2019.



Source: NBU, Concorde Capital research

Ukrainian hryvnia and the Russian ruble: definite decoupling

Regardless of the collapse in Russian-Ukrainian relations in 2014, the historical and geographical closeness of the two countries could cause investors to project developments in the Russian economy to Ukraine. Although Russia has traditionally been Ukraine's top trading partner, the currencies of the two countries mostly pursued their own path and have demonstrated little, if any, dependence on each other.

Both currencies were hit by the world financial crisis and the fall of world commodity prices in 2008-2009. Like the Ukrainian hryvnia, the Russian ruble has never returned to their levels before the crisis. However, the Russian currency significantly appreciated in 2H09 and 2011 amid prosperous export receipts, while the Ukrainian currency has stayed under devaluation pressure for most of the time.

Unlike the NBU, the Russian central bank did not resort to a fixed exchange rate. In 2010-2013, the fluctuation of ruble's exchange rate during the given year could easily exceed 10%, while Ukrainian hryvnia was practically fixed. Therefore, the Russian economy is more accustomed to exchange rate fluctuations than Ukraine, where the exchange rate was completely unleashed only in 2014.

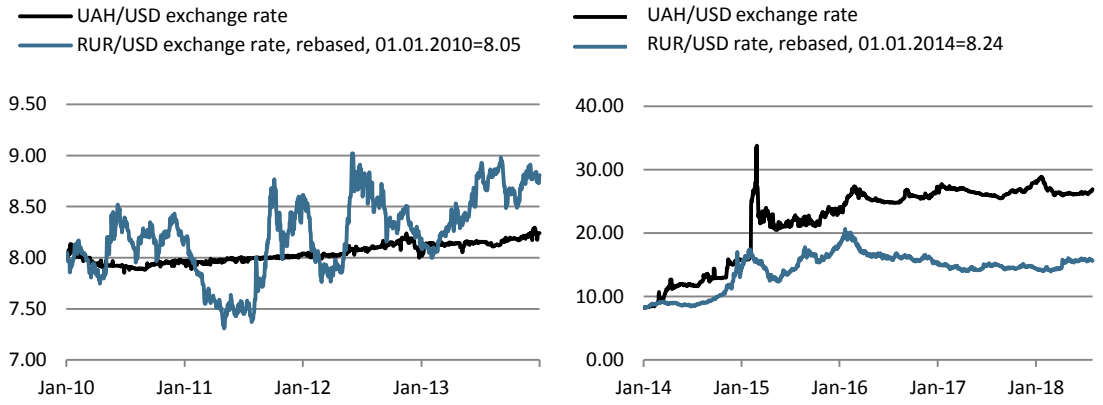
An analysis of the two currencies' exchange rates during the past ten years demonstrates that they highly positively correlated only in 2008 (when both currencies were practically stable) and 2014 (when both currencies experienced a major collapse). After 2015, the two currencies' exchange rates reveal no resemblance neither in the mid-term, nor in seasonal fluctuations.

Share of Russia in Ukraine's external trade dropped significantly in 2014-2017

UAH/USD and RUR/USD exchange rate correlation coefficient (R)

2008	0.86
2009	-0.01
2010	-0.30
2011	0.42
2012	0.47
2013	0.52
2014	0.76
2015	0.08
2016	-0.06
2017	-0.08
2018	-0.61

No dependence between the exchange rates of UAH and RUR



Source: UkrStat, Bloomberg, Concorde Capital research

Appendices

Appendix 1. Modeling floating exchange rate for 2011-2013

We assumed that during 2011-2013, the market would function under the floating exchange rate and this would keep the C/A deficit from enlarging too much. A benchmark of 3% of GDP served as the highest "affordable" C/A deficit, which allows the economy to function without significant hryvnia depreciation or losses in gross international reserves.

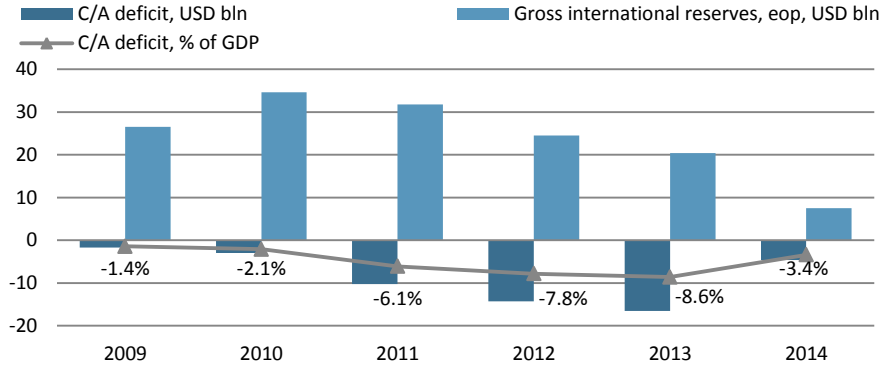
As statistics show, Ukraine's C/A deficit went beyond the benchmark of 3% of GDP in 2H11. That was the moment when the country started losing gross reserves amid a fixed exchange rate. We assume that introducing a floating exchange rate would "correct" the C/A deficit from 8.6% of GDP in 2013 to around 3% of GDP in 2014.

For simplicity, we employed the actual current account and GDP data. First, we estimated the "target C/A deficit" as 3% of GDP in USD terms, using the actual exchange rate for the first year of the period in the model. Then, we drew "target imports," which would bring the C/A deficit to the "target" while keeping other C/A components equal to actual. Finally, we estimated "the balancing exchange rate" that would make equal actual imports in UAH terms to "the target import". For each year, we employed the estimated "balancing exchange rate" of the previous year in order to make all needed estimates in UAH.

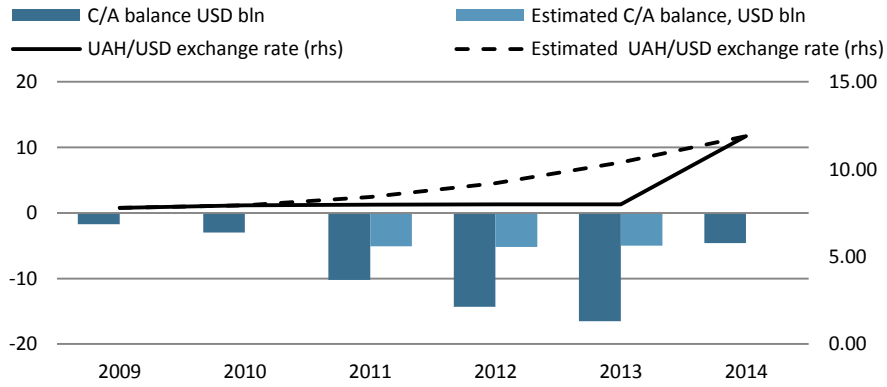
	2011	2012	2013
C/A balance, USD bln	-10.2	-14.3	-16.5
Trade balance, USD bln	-10.2	-14.3	-15.6
Export, USD bln	88.8	90.0	85.5
Import, USD bln	99.0	104.4	101.1
Income (balance), USD bln	-3.8	-3.0	-3.0
Current transfers (balance), USD bln	3.7	3.0	2.1
UAH/USD exchange rate, actual	7.97	7.99	7.99
GDP, UAH bln	1,349	1,459	1,523
GDP, USD bln*	169.3	173.5	165.3
Target C/A balance (3% of GDP), USD bln	-5.1	-5.2	-5.0
Target import, USD bln	93.8	95.3	89.6
Balancing UAH/USD rate	**8.41**	**9.21**	**10.40**

As the modeling results suggest, in order to keep the C/A deficit at 3% of GDP in 2011-2013, the national currency should have been devalued by around 27% during three years. This would have helped to alleviate the devaluation shock in 2014 when the hryvnia lost 34% of its value. However, it would hardly have helped to lessen the 46% devaluation in 2015 caused by exports being more than halved.

Under a fixed exchange rate, Ukraine's international reserves started declining as soon as the C/A deficit exceeded 3% of GDP in 2H11.



The floating exchange rate in 2011-2013 would have helped to reduce devaluation pressure in 2014.



** For 2012 and 2013, "the balancing exchange rate" of the previous year is employed.*
Source: NBU, Concorde Capital research

Appendix 2. FCY balance model

Estimation of FCY needs in 2018-2022

1. C/A balance

Our projections of C/A balance in 2018-2020 are presented in the table:

USD bln	2015	2016	2017	2018E	2019E	2020E	2021E	2022E
CA balance	**1.6**	**-1.3**	**-2.4**	**-3.1**	**-4.0**	**-6.5**	**-6.5**	**-6.2**
G&S balance	-2.4	-6.5	-8.6	-10.1	-11.6	-14.5	-14.8	-14.7
Balance of goods	-3.5	-6.9	-9.7	-11.4	-13.3	-13.8	-14.1	-14.4
Export of goods	35.4	33.6	39.7	44.7	48.7	53.1	56.6	59.4
yoy		*-5.3%*	*18.3%*	*12.5%*	*9.1%*	*9.0%*	*6.5%*	*5.0%*
Import of goods	38.9	40.5	49.4	56.1	62.0	67.0	70.7	73.8
yoy		*4.2%*	*21.9%*	*13.6%*	*10.6%*	*8.0%*	*5.6%*	*4.4%*
Balance of services	1.1	0.5	1.0	1.3	1.7	-0.7	-0.7	-0.4
Export of services	12.4	12.4	14.2	15.7	17.1	15.6	16.4	17.2
yoy		*0.0%*	*13.8%*	*11.0%*	*9.0%*	*-9.0%*	*5.0%*	*5.0%*
Import of services	11.3	12.0	13.1	14.5	15.5	16.2	17.1	17.6
yoy		*5.4%*	*9.9%*	*10.0%*	*7.0%*	*5.0%*	*5.0%*	*3.0%*
Balance of primary income	0.4	1.5	2.6	3.2	3.7	4.0	4.2	4.3
Balance of secondary income	3.6	3.6	3.6	3.8	3.9	4.0	4.1	4.2
Exports of goods and services	**47.9**	**46.0**	**53.9**	**60.4**	**65.9**	**68.7**	**73.0**	**76.6**
yoy		*-3.9%*	*17.1%*	*12.1%*	*9.1%*	*4.3%*	*6.2%*	*5.0%*
Imports of goods and services	**50.2**	**52.5**	**62.5**	**70.5**	**77.5**	**83.2**	**87.7**	**91.3**
yoy		*4.5%*	*19.2%*	*12.8%*	*9.8%*	*7.4%*	*5.4%*	*4.1%*

Source: NBU, MinFin, IMF, Bloomberg, Concorde Capital research

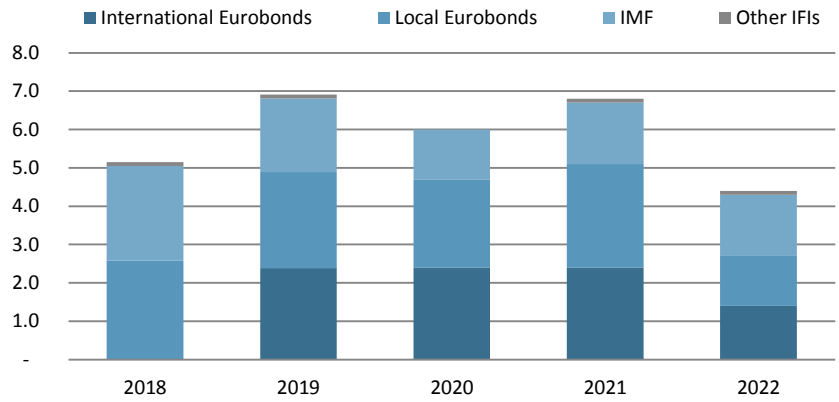
Appendix 2. FCY balance model (cont'd)

2. FCY-denominated state debt and expected borrowing

We estimated Ukraine's expected payments on FCY-denominated state debt in 2018-2022. We assume that payments will include repayments on one- or two-year local Eurobonds issued during the forecast period (discussed below) while all other state borrowing made during the forecast period will be redeemed after 2022.

USD bln	2018E	2019E	2020E	2021E	2022E
International Eurobonds	-	2.4	2.4	2.4	1.4
Local Eurobonds	2.6	2.5	2.5	3.0	2.5
IMF	2.5	1.9	1.3	1.6	1.6
IFIs	0.1	0.1	0.0	0.1	0.1
Total	**5.2**	**6.9**	**6.2**	**7.1**	**5.6**

FCY-denominated state debt repayments, USD bln



3. FCY-denominated corporate and banking debt

For estimating FCY payments on corporate and banking debts, we used the data on short-term (under one year) corporate and banking debt as a starting point. Then, we applied rollover rates for estimating FCY inflows or outflow in these sectors for each year.

	2012	2013	2014	2015	2016	2017	2018E	2019E	2020E	2021E	2022E
Short-term corporate debt at the beginning of the year, USD bln	34.5	39.0	38.1	32.1	34.5	36.8	36.8	34.9	34.6	34.6	35.3
Short-term banking debt at the beginning of the year, USD bln	14.1	11.4	11.7	10.6	6.7	5.3	2.9	2.4	1.5	1.2	1.1
Corporate rollover rate	*113%*	*98%*	*84%*	*108%*	*107%*	*100%*	*95%*	*99%*	*100%*	*102%*	*102%*
Banking rollover rate	*81%*	*103%*	*90%*	*64%*	*78%*	*56%*	*80%*	*65%*	*80%*	*90%*	*100%*

Source: NBU, MinFin, IMF, Bloomberg, Concorde Capital research

Appendix 2. FCY balance model (cont'd)

Estimation of FCY financing sources in 2018-2022

The foreign currency needs will be financed by foreign direct investment (FDI), new placements of international and local Eurobonds, the borrowing of corporate and banking sector in foreign currency, and government international borrowing from the IMF and other IFIs. Our major assumptions regarding these parameters are discussed below.

1. Foreign direct investment (FDI) and portfolio investment

Military aggression, coupled with stagnant reforms, will restrain foreign investment inflow to the country. We expect net FDI inflow to reach USD 3.5 bln by 2021, which still will be far below Ukraine's record-high of USD 9.9 bln in 2008.

USD bln	2016	2017	2018E	2019E	2020E	2021E	2022E
FDI	3.3	2.3	2.0	2.0	3.0	3.5	3.5
Portfolio investment	0.3	1.8	1.2	1.0	1.5	1.5	2.0

2. International and local Eurobonds

Our assumptions regarding international and local Eurobond placements in 2018-2022 are presented in tables below. We assume the Ukrainian government will stop placing local Eurobonds in 2022 and will resort to international markets as a source for its FCY financing needs.

USD bln	2018E	2019E	2020E	2021E	2022E
International Eurobonds	2.2	3.0	4.5	4.0	3.0

USD bln	2018E	2019E	2020E	2021E
<12M local Eurobonds	0.6	0.0	0.0	0.0
1Y local Eurobonds	1.5	1.5	1.5	1.0
2Y local Eurobonds	0.9	1.5	1.5	1.0
Total	3.0	3.0	3.0	2.0

3. IMF and other IFIs

We assume Ukraine will receive USD 1.9 bln in lending from the IMF, EUR 0.5 bln from the EU and USD 0.8 bln from the World Bank in 2018. We expect Ukraine and the IMF to launch a new Stand-By Arrangement, instead of the Extended Funds Facility (EFF) program that is supposed to terminate in March 2019. The support of IMF and other IFIs will be in high demand due to weak FDI inflow and Ukraine's weak position on the international debt markets.

USD bln	2018E	2019E	2020E	2021E	2022E
IMF	1.9	1.0	1.5	2.0	1.5
Other IFIs	1.4	0.6	1.0	0.5	0.5

Source: NBU, MinFin, IMF, Bloomberg, Concorde Capital research

Appendix 2. FCY balance model (cont'd)

Modeling results: FCY needs vis-à-vis financing sources

USD bln (if not specified otherwise)	2018E	2019E	2020E	2021E	2022E
1. Needs in financing (1.1+1.2)	48.0	48.2	48.8	49.4	48.2
1.1 Current account deficit	3.1	4.0	6.5	6.5	6.2
1.2. FCY-denominated debt	44.9	44.2	42.3	42.9	42.0
1.2.1. State debt	5.2	6.9	6.2	7.1	5.6
1.2.1.1. Eurobonds	0.0	2.4	2.4	2.4	1.4
1.2.1.2. Local Eurobonds	2.6	2.5	2.5	3.0	2.5
1.2.1.3. Other IFIs	0.1	0.1	0.0	0.1	0.1
1.2.1.4. IMF	2.5	1.9	1.3	1.6	1.6
1.2.2.Short-term corporate debt	36.8	34.9	34.6	34.6	35.3
1.2.3. Short-tem banks debt	2.9	2.4	1.5	1.2	1.1
2. Sources of financing	49.0	46.7	50.3	49.9	48.6
2.1. FDI	2.0	2.0	3.0	3.5	3.5
2.2. Portfolio investment	1.2	1.0	1.5	1.5	2.0
2.2. Eurobonds	2.2	3.0	4.5	4.0	3.0
2.3. Local Eurobonds	3.0	3.0	3.0	2.0	0.0
2.4. Other IFIs	1.4	0.6	1.0	0.5	0.5
2.5. IMF	1.9	1.0	1.5	2.0	1.5
2.6. Other financing	37.3	36.1	35.8	36.4	38.1
Corporate, rollover rate	*95%*	*99%*	*100%*	*102%*	*105%*
Banking, rollover rate	*80%*	*65%*	*80%*	*90%*	*100%*
3. Financing deficit (-) /surplus (+) (2-1)	**1.0**	**-1.5**	**1.5**	**0.5**	**0.5**
4.NBU net currency purchase on ForEx	0.3	0.0	0.2	1.5	1.8
5. Net purchase of cash foreign currency by individuals	0.5	0.0	0.0	0.0	0.0
6. Gross international reserves increase/decrease (3+4-5)	0.8	-1.5	1.7	2.0	2.3
Gross international reserves in the beginning of the year	18.8	19.6	18.1	19.8	21.8
Gross international reserves in the end of the year	19.6	18.1	19.8	21.8	24.0
Gross international reserves, months of imports	**3.3**	**2.8**	**2.9**	**3.0**	**3.2**

Source: NBU, MinFin, IMF, Bloomberg, Concorde Capital research

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