Global Viewpoint

Issue No: 09/10

July 3, 2009

Goldman Sachs Global Economics,
Commodities and Strategy Research
at **https://360.gs.com**

Finding 'Fair Value' for the Ukrainian Currency

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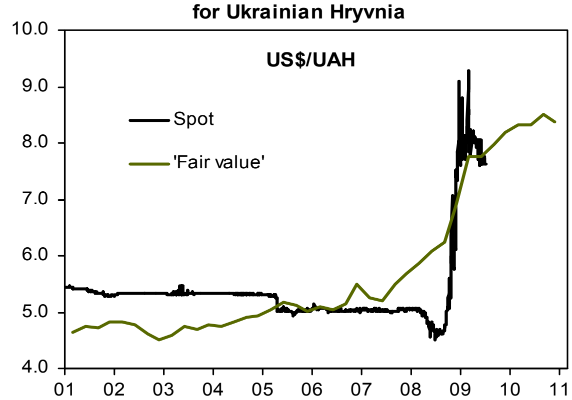
We apply the approach of our GSDEER currency valuation model to estimate a 'fair value' for the Ukrainian Hryvnia. Our calculations show that the UAH was slightly 'undervalued' in the first few years of this decade, but appeared in 'overvaluation' territory by 2007 — around the time when the current account switched from surplus to deficit. The 'fair value' for the UAH has been weakening on the back of high CPI inflation, but this dynamic has accelerated even more as Ukraine's terms of trade and output collapsed in 2008-2009. The consequent depreciation of the UAH has allowed it merely to catch up with the unfavourable fundamentals. Most recently, some macroeconomic adjustments, an improvement in emerging market sentiment and IMF support have helped to reverse part of the depreciation. However, expectations of sticky Ukrainian inflation and only a gradual recovery in global commodity demand warrant further deterioration in the UAH's 'fair value'.

Depreciation on the Back of Deteriorating Fundamentals

During the current crisis, the Ukrainian currency has depreciated sharply, exhibiting a very high degree of volatility in the process. It is interesting to look at the macroeconomic fundamentals that warranted the sell-off in the Ukrainian Hryvnia's exchange rate (UAH), and how they are shaping up for the near future. As a core analytical tool, we employ our workhorse GSDEER currency valuation model to estimate a 'fair value' for the UAH.

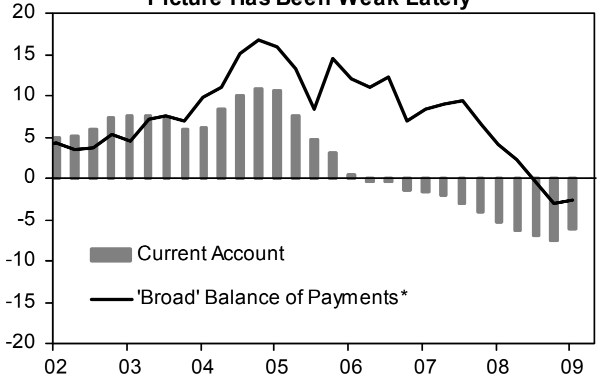
We start with a discussion of the macroeconomic developments that preceded the depreciation of the UAH. Ukraine has run a current account deficit since 2006 (see Chart 2 on the next page). Until the middle of 2008, this was compensated by FDI and portfolio inflows (as reflected in our 'broad' balance of payments measure, plotted in the same chart). However, investors' appetite for risky emerging market assets virtually disappeared as global and local macroeconomic fundamentals deteriorated sharply in the second half of 2008 on the back of the severe financial crisis (as illustrated in the path of EM Credit Default Swap spreads, see Chart 3). As a result, investment flows have reversed, cutting off this relatively 'sticky' channel of current account financing (and our 'broad' balance of payments measure moved into negative territory — see Chart 2 again).

Chart 1: Valuation Dynamic Not Supportive for Ukrainian Hryvnia



Source: Bloomberg, GS Global ECS Research.

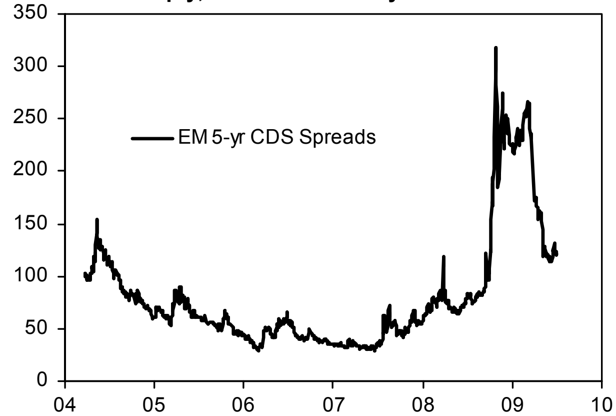
Chart 2: Ukrainian External Flow Picture Has Been Weak Lately



* Defined as current account balance plus net direct and net portfolio investment.

Sources: GS Global ECS Research, Haver Analytics.

Chart 3: EM Sentiment Has Deteriorated Sharply, And Has Not Fully Recovered

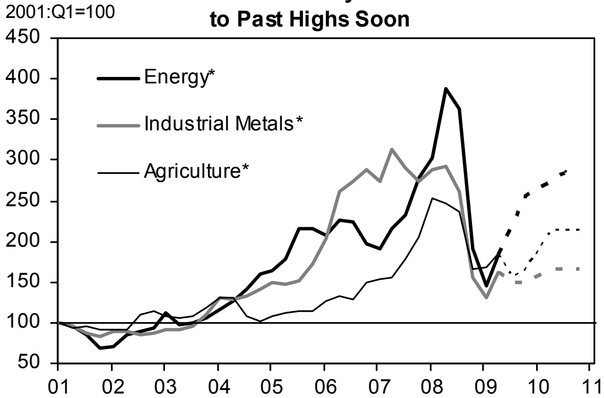


Source: Standard & Poor's.

The Ukrainian economy is dependent on commodity markets. Metals and agriculture drive a significant share of value added; hence, the demand dynamics in these markets have a direct effect on the country's welfare.[1] (The net effect of energy prices is less dramatic, because although Ukraine is a large importer of oil and gas, it also earns from energy transit services and exports goods to the oil-exporting Russian economy.) As a result, its terms of trade improved more or less steadily until last year's collapse in commodity prices (see Chart 4).

Since the turn of the century, the National Bank of Ukraine (NBU) has maintained a heavily managed exchange rate regime, effectively pegging the Ukrainian Hryvnia to the US Dollar, with the aim of providing a 'nominal anchor' for the economy (over time, it has allowed significant real and occasional nominal exchange rate appreciation). However, last Autumn, as unfavourable external developments were added to already weak domestic fundamentals, the pressure on the currency intensified, forcing the NBU to abandon the peg after having lost a substantial share of its foreign exchange reserves. Consequently, from the beginning of 2008, the UAH has depreciated by about 50% in nominal terms. This is a larger sell-off than we have seen for the HUF, PLN, RUB and TRY, but still less than in the case of the ISK (see Table 1). The day-to-day volatility of the Ukrainian currency has increased dramatically too.

Chart 4: Commodity Prices Collapsed, and Are Not Likely to Return to Past Highs Soon



* S&P GSCI™. Dotted lines are GS forecasts.

Source: Standard & Poor's, GS Global ECS Research.

IMF Assistance

A stand-by arrangement with the International Monetary Fund (IMF) for US$16.4bn (US$4.5bn disbursed immediately), approved in November 2008, has limited the extent of the financial destabilisation. However, the continued deterioration of global and local economic fundamentals, not helped by ongoing domestic political tensions, has maintained pressure on the market. The UAH reached its weakest level in February 2009. This coincided with the collapse in negotiations between Ukrainian policy-makers and the IMF about the disbursement of the second financing tranche (due to a higher than initially agreed budget deficit, failure to implement a flexible and transparent foreign exchange market, the imposition of trade barriers, etc.).

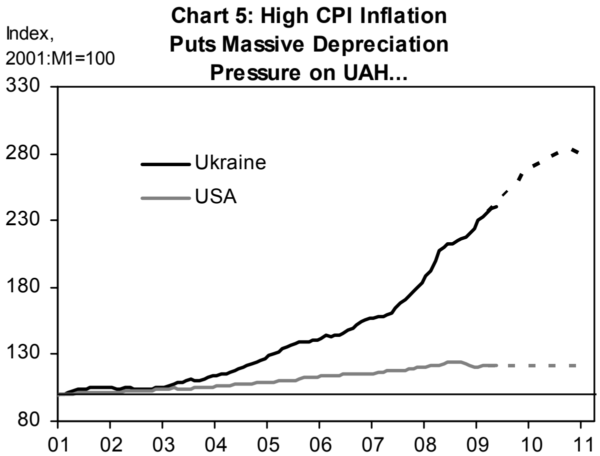
Since the Spring of this year, the global industrial cycle has started to show signs of stabilization, which has slowed the reduction in demand for Ukrainian exports. At the same time, domestic demand has continued its free-fall, with a disproportionate impact on demand for imports (especially cars and natural gas). These 'real side' dynamics, together with a sharp devaluation of the local currency, have aided the adjustment of Ukraine's balance of payments.

Table 1: Selected Emerging Markets FX Depreciations in the Current Crisis

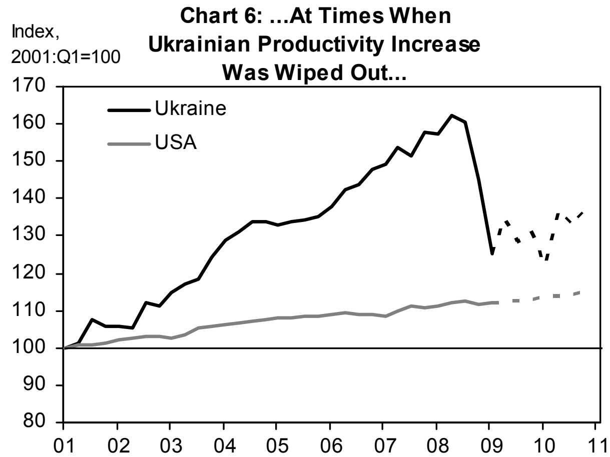
	UAH	HUF	ISK	PLN	RUB	TRY
Spot, Jan-08	5.05	173.5	62.8	2.46	24.64	1.17
Spot, Jul-09	7.63	193.9	126.6	3.12	31.28	1.54
Depreciation	51%	12%	101%	27%	27%	31%

Source: Bloomberg, Goldman Sachs.

1. We use the S&P Goldman Sachs Commodity Index™ for industrial metals as a measure of metal prices. Even though it is less volatile than prices for rolled-stock steel, which makes up the bulk of Ukraine's metal exports, our procedure for estimating the effect of metal price dynamics on Ukraine's terms of trade allows us to correct for this discrepancy.



Dotted lines are Goldman Sachs forecasts.
Sources: Goldman Sachs, Haver Analytics.



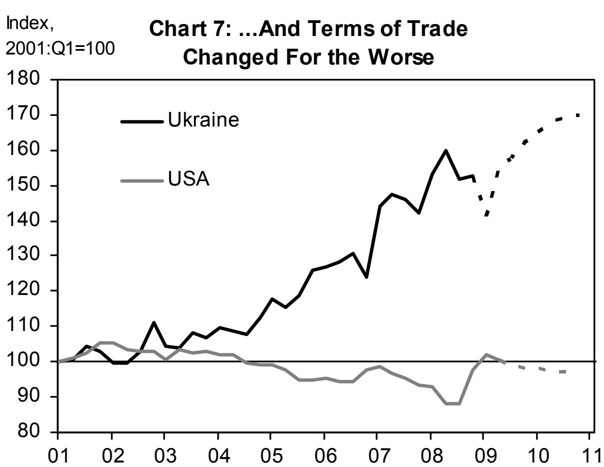
Dotted lines are Goldman Sachs forecasts.
Sources: Goldman Sachs, Haver Analytics.

Furthermore, and perhaps even more importantly, in May 2009 the government renegotiated its arrangement with the IMF, agreeing on a more flexible policy conditionality, enabling the disbursement of the second instalment of the Fund's support package (US$2.8bn). This has reduced the pressure on the currency, which has rallied 18% from its trough, and the volatility has come down notably too.

'Fair Value' for the Ukrainian Hryvnia

In times of economic and financial stress, coupled with ongoing major global macroeconomic rebalancing, volatility in asset prices, including foreign exchange rates, is unsurprisingly high. In such circumstances it is arguably especially important for investors and policy-makers alike to have in mind some notion of a 'fair value' of a given asset as a 'fundamental anchor' in their decision-making process (see Box on the next page for a brief discussion of the role that 'fair value' exchange rates play in the FX market).

In the case of currencies, we routinely use our GSDEER valuation model to estimate 'fair value' exchange rates. To arrive at the 'fair value' estimates for the UAH, we have utilized the same approach and parameters as in GSDEER. We pool the real exchange rate and differentials in terms of trade and productivity for Ukraine with the 33 existing countries in the GSDEER universe, and apply the panel DOLS estimation method. The data sample for Ukraine, slightly shorter than our other samples, begins in 2001:Q1. Because only a short time series is available, similarly to other Central and Eastern European GSDEER estimates, we have adjusted the fixed effect for the UAH in order to correct the small sample bias.[2] Although the UAH has not been formally included into our mainstream GSDEER model, this exercise allows us to gain a rough idea of the 'fair value' for the Ukrainian currency.



Dotted lines are Goldman Sachs estimates and forecasts.
Sources: Goldman Sachs, Haver Analytics.

Chart 1 on the front page shows the historical and predicted dynamics of UAH 'fair value' according to our calculations. The large differential in CPI inflation between Ukraine and the US (the base country, see Chart 5), in spite of Ukraine's higher relative productivity growth (Chart 6), lead to a significant UAH real exchange rate appreciation and a weakening in its 'fair value', even in times of improving terms of trade (Chart 7). As a result, the UAH, being 'undervalued' in the first part of the sample, appeared in 'overvalued' territory by 2007, thus crossing the 'fair value' line around the time when the current account also switched from a positive to a negative balance. As the pace of the current account deterioration increased, and investment flows also started to decline, the weakening of our 'fair value' estimate accelerated. Moreover, in 2008, when Ukraine's terms of trade started to worsen (and output began to contract), the pace of deterioration in the 'fair value' increased dramatically.

Using our economists' forecasts of real GDP growth and CPI inflation for Ukraine and the US, as well as commodity price forecasts, we can (after estimating implied paths for productivity growth and terms of trade) generate projections for the future dynamic of the UAH's 'fair value'. Our forecasts of sticky Ukrainian CPI inflation

2. For more details about our estimation approach, see the piece describing the latest iteration of the baseline GSDEER model: "The Evolving GSDEER Currency Model", *Global Viewpoint* 07/03, January 25, 2007.

The Role of 'Fair Value' Exchange Rates

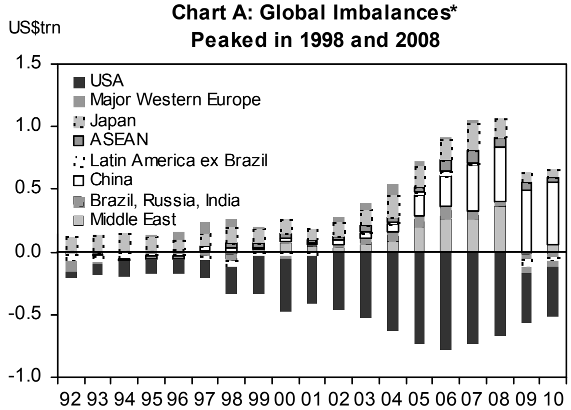
Currencies often deviate from their 'fair values', and sometimes quite substantially. However, the latter play an important role as 'fundamental anchors' by determining the direction in which a currency is likely to move in the long term.

On average it takes as long as 3 years for major and emerging market currencies to close half of the misalignment against their 'fair values' given by our GSDEER model, though extreme levels of currency misalignment are corrected at a relatively faster rate. Interestingly, emerging market currencies have experienced greater levels (and longer periods) of 'overvaluation' than 'undervaluation', at least over the past two decades.*

The role of 'fair values' is particularly important at times when market participants focus on fundamental determinants—'valuations'—of asset prices, differentiating specific assets accordingly: bidding up the 'undervalued' and punishing the 'overvalued' ones. Market participants trade the 'valuation theme' in an irregular fashion, but it is especially notable during periods of global macroeconomic rebalancing and international financial crises.

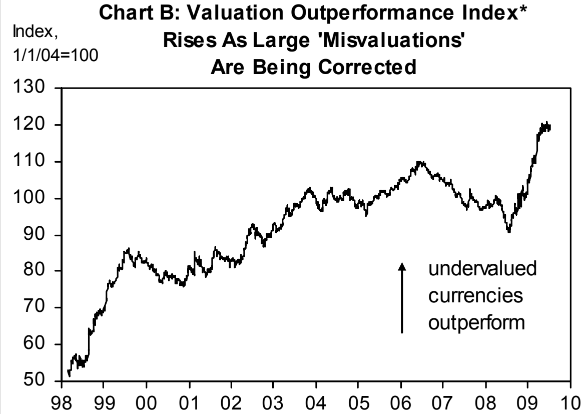
Countries tend to accumulate external trade and financial imbalances, and if this process continues for long enough, such imbalances fall due for a correction (as happened in 1998 and, on a larger scale, is happening now — see Chart A). The necessity of global readjustment creates an environment where 'valuations' move into the market's focus, and exchange rates converge closer towards their 'fair' levels (one of the reasons being that, to a significant extent, international macroeconomic rebalancing is done directly via relative exchange rate movements). As a result, 'undervalued' currencies appreciate against 'overvalued' ones. This is well demonstrated by the Valuation Outperformance Index from our FX Slices framework: it moved up sharply in 1998-1999 and is doing the same now (see Chart B).

Chart A: Global Imbalances* Peaked in 1998 and 2008



* Current account deficits in current US$ (estimates for 2006-2008, forecasts for 2009-2010).
Source: International Monetary Fund, Goldman Sachs.

Chart B: Valuation Outperformance Index* Rises As Large 'Misvaluations' Are Being Corrected



* Carry-adjusted performance of an equally-weighted portfolio that is long the currencies most 'undervalued' on GSDEER and short the most 'overvalued' ones. Source: Goldman Sachs.

* For more details on these empirical regularities, see: "GSDEER and Currency Convergence: Crossing the Line of Fair Value", *Global Viewpoint* 07/09, March 15, 2007.

Table 2: GS Macroeconomic Forecasts for Ukraine

	2009	2010
Real GDP Growth, %	-15	2
CPI Inflation, %	20	5

Source: Goldman Sachs.

(as shown in Table 2) and only gradually recovering commodity prices (Table 3) lead to its further deterioration over the course of 2009-2010.

Latest Developments

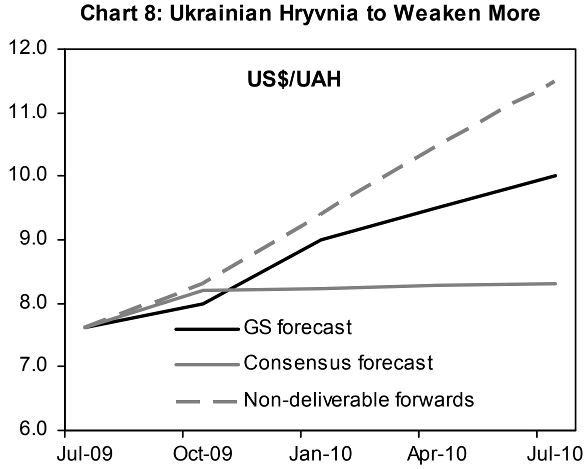
'Fair value' for the US$/UAH exchange rate in the first quarter of 2009 was 7.77. So, at the peak of its depreciation, the UAH had 'overshot' the macro fundamentals significantly. At the moment, it trades quite close to 'fair' levels, which are somewhere between 7.75 and 7.96.

Currently, two opposing forces are influencing the Ukrainian currency. On the one hand, our measure of UAH 'fair value' weakens further to 8.18 by the end of this year, and to 8.38 by the end of 2010. Moreover, sentiment for risky EM assets (which drives the availability of external financing for CEE countries and therefore affects their exchange rates via the capital account channel), even after significant improvement, remains quite weak — it is now comparable to the levels seen during the last international crises.

On the other hand, the NBU resisted any further depreciation of the UAH at the end of 2008 (by selling foreign exchange reserves) and made a (successful) attempt to partly reverse it at the beginning of 2009 (via squeezing UAH liquidity). While at the moment the Central Bank is exploiting the opportunity to replenish reserves by purchasing foreign exchange from the market, it is likely to oppose any meaningful depreciation pressure in the next several months.

The reason for the NBU's concerns is the large share of foreign-currency-denominated liabilities held on the balance sheets of Ukrainian households and corporations (the external debt of the public sector is fairly small). A further currency depreciation would inflict more damage on the already weak balance sheets of the domestic private sector, especially the banking system, which is already suffering from severe stress.

Chart 8: Ukrainian Hryvnia to Weaken More



Sources: Bloomberg, Consensus Economics, Goldman Sachs.

Table 3: GS Commodity Forecasts

	Spot	3-mths ahead	6-mths ahead	12-mths ahead
Crude Oil (WTI), $/bbl	67	75	85	90
Copper, $/mt	5035	4300	4300	4800
Wheat, cent/bu	500	475	500	650

Source: Goldman Sachs.

The Next 6-12 Months

To a significant extent, the stability of the Ukrainian currency (and the economy overall) in the medium term depends on the continued commitment of foreign private financial institutions to provide support for their local affiliates, as well as the successful cooperation with the IMF and other multilateral financial institutions. Our CEE economists have calculated that Ukraine has EUR21.4bn of external debt maturing in 2009. In their baseline scenario, Ukraine should be able to refinance this by amortizing foreign debt using a combination of sovereign and private borrowings. These calculations implied that the current account will return to balance as early as this year.[3]

While we have already seen a substantial correction of the current account deficit in the past several months, the structure of energy contracts with Russia and a recent run-up in energy prices are likely to require an even larger swing in the balance of payments. There is also a risk that actual IMF support falls short of planned levels, as the Ukrainian government currently has difficulties in implementing the policy measures stipulated in its agreement with the Fund. This could necessitate further current account adjustment to compensate for the gap in external financing.

Given expected fundamental developments, as well as potential risks to the baseline scenario, our economists' forecast for the US$/UAH exchange rate is more bearish than the consensus on a 6- to 12-month horizon (market forwards price in an even larger depreciation due to a hefty interest rate premium in Ukraine versus the US, see Chart 8).[4]

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Thanks to Rory MacFarquhar, Thomas Stolper and Anna Zadornova for valuable comments and fruitful discussions, as well as to Loretta Sunnucks for her excellent help.

3. For further details, see the 'Moderate' scenario in their report "External adjustment begins in CEE", *New Markets Analyst*, Issue No: 09/08, April 24, 2009.
4. These forecasts were last reiterated in "Adjusting our forecasts for Russia, Kazakhstan and Ukraine", *New Markets Analyst*, Issue No: 09/07, April 9, 2009.