

Dollarization in Ukraine: 1991 to the Present

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An economy is dollarized when a foreign currency performs the major functions of money alongside a domestic currency. Like many emerging market economies, the Ukrainian economy is dollarized – in fact, its entire period of independence has been marked by dollarization. What makes this situation more striking is that, while Ukraine has witnessed two very different monetary regimes since independence, the extent of dollarization appears to be largely unchanged across the two regimes. We offer an explanation of this phenomenon, highlighting the significant role the shadow economy plays in Ukraine, and we discuss implications for dollarization or euroization in Ukraine's future. (JEL)

An economy is dollarized when a foreign currency (often the US dollar) performs the major functions of money alongside a domestic currency. Like many emerging market economies throughout the world, the economy of Ukraine is dollarized (Antinolfi and Keister, 2001). Indeed, the entire period of independence, starting in August 1991, has been marked by a dollarized Ukrainian economy. What makes this situation even more striking is that, while Ukraine has witnessed two very different monetary regimes

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during independence, the extent of dollarization appears to have been largely unchanged across the two regimes. This phenomenon calls for an explanation; this paper provides it.

In this paper, we first describe those two regimes: the Russian ruble zone and its aftermath, 1991-96; and the hryvnia in a managed exchange rate regime, with the National Bank of Ukraine (NBU) as the manager, 1996-present. Once having described the two regimes, we show why dollarization was present in each. Here we rely heavily on search-theory models of money, as represented by Curtis and Waller [2000, 2001]. In particular, we show why dollarization is an equilibrium outcome under both regimes, despite the differing legal status of the dollar.

Next, we argue why the observed extent of dollarization appears to be the same across the two regimes. A crucial piece of the argument for the latter is the shadow economy of Ukraine, one of the largest as a percentage of GDP in the world. The size of the shadow economy is roughly stable across the two monetary regimes, as is the role of the dollar in that shadow economy.

Finally, we consider the policy implications of dollarization for Ukraine in the near term. For instance, the dollar continues to play the role of the unit of account in Ukraine's international trade---here, the main statistics are denominated in US dollars. As we project into the future, the role of the euro vis-a-vis the dollar becomes a larger consideration, depending on the extent to which Ukraine becomes bound more tightly to the EU regional supply chain. For example, some preliminary results have been obtained concerning the effect of a customs union agreement between Ukraine and the EU, rather like that between Turkey and the EU (Harbuzyuk, 2001). If a customs union were

created with the EU, the euro would certainly perform more functions of money in Ukraine than it does at present.

In a distant future, one can imagine a euroized Ukraine, where the euro performs the functions of money that the dollar has performed so far since independence (Thimann, 2001; Krause, 2001). How distant that future is, and whether such a future is ever reached, depends in large part on what Ukraine is willing or able to do to integrate more deeply into European economic structures.

The next two sections deal with each of the monetary regimes in Ukraine, in temporal order. Section IV surveys the relevant search-theory models of money, their equilibria and policy implications for Ukraine. Section V considers the role of the shadow economy in the enduring extent of dollarization. The final section examines the role of foreign trade and trade policy in promoting or sustaining dollarization, as well as projecting medium run scenarios of the monetary affairs of Ukraine.

II. Monetary Regime 1 -- the Russian Ruble Zone and its Aftermath

At the moment of its declaration of independence from the Soviet Union in August, 1991, the currency of Ukraine was the Soviet ruble. Ukraine, as with the other former Soviet republics who joined the Commonwealth of Independent State (CIS), continued to belong to the now Russian-ruble zone. During 1992-93, that ruble zone collapsed (see Gros and Steinherr, chapter 13.4 for a detailed account of the collapse).

One of the first acts of the government of newly independent Ukraine was the creation of a provisional national currency, the karbovanets (Krb) [also called “coupons”] introduced into circulation in January 1992. The National Bank of Ukraine (NBU) instituted its Foreign Currency Exchange in August of that same year. Throughout 1992, Karbovanets

and rubles circulated at par. The payments system for the various newly independent republics remained centered on Russia, with all payments automatically credited in Russia before clearance.

This arrangement, called by Stanley Fisher “the worst monetary constitution one can imagine” created a severe common-pool resource problem. Small republics like Ukraine could, via money creation, double the domestic money supply while increasing the ruble zone money supply by only a small percentage. Indeed, one of the landmarks of the downfall of the ruble zone was a large money emission by Ukraine in July 1992. Plans sponsored by the IMF to create a better monetary constitution resulted in an agreement on an Interstate Bank -- a supranational Central Bank for the ruble zone, which Ukraine among others signed in January 1993. However, the Interstate Bank never saw the light of day. Although there have been attempts, then and now, to see in the Russian-ruble zone an optimal currency area, the arguments were at best inconclusive. So far, among the successor states of the former Soviet Union, only Belarus has rejoined the Russian-ruble zone.

The ruble was a weak currency despite IMF support, falling rapidly against the US dollar due in large part to inflation throughout the ruble zone. This situation of rapidly eroding value spurred a demand for dollars instead of rubles as a store of value, a crucial (and enduring) aspect of dollarization in Ukraine. For dollars to serve as a store of value, they had to be made available to the public. To this end, the NBU began granting licenses for executing trades in foreign currency (principally dollars and rubles) in February 1993. There were two kinds of licenses, general and individual. General licenses are issued to

banks and other financial companies. A licensed bank or any company that signed an agency contract with a licensed bank could open an “exchange point” where coupons could be sold for foreign currency and vice versa. These general licenses remain in effect today. Individual licenses were given to companies for a specified period of time, to conduct trades of goods and services on Ukrainian territory in foreign currency, to open accounts in banks outside Ukraine, and to invest otherwise abroad. Holders of individual licenses could not open exchange points. In November 1994, the NBU stopped issuing individual licenses, and as of August 1, 1995, stopped renewal and validity of existing individual licenses. Since that date, only holders of general licenses may conduct foreign exchange operations. Finally, since October of that year, the NBU has required that exchange points be equipped with computers or electronic cash machines.

The beginning of the end of the ruble zone in Ukraine was signaled by the government declaration of November 1992, that henceforth the Russian ruble was no longer legal tender in Ukraine. Karbovanets were the sole legal tender in Ukraine, but dollars were not excluded as a legal means of payment. That exclusion only appeared in legislation in August 1995, from which time on only holders of general licenses may use dollars as a medium of exchange inside Ukraine.

Beginning in November 1992, dollars acquired a significant role as a unit of account (e.g., in advertisements for flats in large cities) and as a medium of exchange (e.g., rents on those flats), in addition to its function as store of value. Even its loss of legal status in 1995 did little to diminish its functioning as money, for it remained a principal medium of exchange in the shadow economy. Thus, firms use dollars in inter-industry trade to evade taxation in local currency—the other common tax evasion

strategy being barter deals among firms. The reason for using dollars only in the shadow economy is the severe punishment for using dollars in the official economy—confiscation of the entire value of a transaction in dollars.

Although money growth and inflation in Russia were serious problems, these were even greater problems in Ukraine. Money supply (as measured by M3) was growing twice as fast in Ukraine as in Russia, and inflation was also higher in Ukraine. Indeed, in the entire period of independence, inflation (as measured by the CPI) in Ukraine has been a persistent problem, although there is some dispute in the figures as to its exact extent. Table 1 shows the NBU figures, as well as those of the Ukrainian-European Policy and Legal Advice Centre (UEPLAC), a think tank set up under the TACIS program to facilitate the Partnership and Cooperation Agreement between Ukraine and the EU, and in particular economic integration between the two.

It is unusual to see such vast difference in two series of the same economic variable; we suspect, based on our own experience in Ukraine and on the behavior of the exchange rate with respect to the dollar, that the UEPLAC numbers are more reliable. In any event, both series agree that the peak year for inflation was 1993, when essentially a confiscatory hyperinflation took place, driven to a large extent by government emissions, which wiped out the nominal value of assets like bank accounts. This again increased demand for dollars as a store of value.

In the period of 1992-94, given much higher inflation in Ukraine than in Russia, the exchange rate of the karbovanets to the ruble fell steadily, from 1:1 in November 1992 to over 10:1 by the end of 1994. Even the ruble was a much better store of value

than the coupon. With inflation rates like these, it is no wonder that the public was clamoring for dollars to protect what nominal value they could. A

At the same time, the central government began efforts to control emissions, bring down the hyperinflation, and restore confidence in the currency on the part of the citizenry—all as run-up to the introduction of the national currency, the Ukrainian hryvnia (UAH). The greatly reduced inflation rates of 1994 and 1995 are testimony to the government's efforts in this direction. In 1996, by the time of the fifth anniversary of independence, the government decided sufficient progress towards stabilization had been made, to replace the provisional currency with the UAH. This sets the stage for monetary regime II.

III. Monetary Regime II -- the Hryvnia in Exchange Rate Management

The replacement of the provisional currency, the Karbovanets, with the permanent currency, the hryvnia (UAH), took place on September 16, 1996. In the two weeks prior to that date, all Karbovanets were withdrawn from circulation, with all existing exchange points performing this service, as well as an additional 10,320 exchange points opened expressly for this purpose. In addition, during this 2-week period, all bank deposits were converted to hryvnia. Conversion took place at the official rate of 100,000 Krb = 1 UAH. According to official estimates, 97% of all Karbovanets were withdrawn from circulation during the allotted time.

The hryvnia was intended to trade in a wide band against the dollar. The NBU set that band as 1.8 UAH to 2.2 UAH = \$1, and maintained the hryvnia in this band for the first 2 years of its existence, as Table 2 shows. The figures for 1992-4 reflect the effect of the hyperinflation in the Karbovanets on the implied exchange rate with the dollar. The

Russian crisis of August 1998, and its resulting echo in Ukraine, drove the hryvnia out of its bands and resulted in an 81% devaluation relative to the dollar by the end of 1998.

This downward trend continued in 1999, with a further 52% devaluation. Since 1999, the hryvnia has remained inside new wide bands of 5.2 to 5.6 UAH = \$1. We should point out that currency controls have been a feature of both monetary regimes in Ukraine. Hryvnia (except for token amounts) are not allowed outside the country, nor can dollars be taken freely outside the country. Bringing in between \$1,000 and \$10,000 cash requires a customs report; bringing in more than \$10,000, a treasury report stating that the money has been obtained from a legal source. Likewise, to take more than \$1,000 out of the country requires one to show the source of the money (e.g., using the customs declaration made when entering the country). In general, taking more dollars out of the country than one has brought in is not allowed, and the excess dollars can be confiscated. These currency controls give the NBU considerable ability to keep the exchange rate within its bands. In addition, they also target the shadow economy, by encouraging people to use bank accounts instead of cash. Finally, they provide a tax revenue source: wire transfers into Ukraine in excess of \$3,000 are taxed at a rate of 20%. Smaller sums are not taxed, but often invite a customs investigation.

Even though Ukraine did not have a Russian-style exchange rate crisis in 1998, it was not able to avoid international payments difficulties of its own. The Ministry of Finance had financed its deficits the preceding two years with short-term government debt (T-bills), and in the fall of 1998, the Ministry found itself unable to roll over that debt, even at interest rates 1500 basis points above Frankfurt levels. The resulting liquidity crisis forced the NBU to monetize the debt, driving the hryvnia down sharply

against the dollar. Essentially, the NBU used up most of its dollars in reserve during this episode.

Such decade-long erosion of value of the local currency provided ample incentive for Ukrainians to hold foreign currency (mainly dollar) bank deposits. Table 3 gives the ratio of foreign currency deposits/total deposits over the period 1992 to present. Given the potential unreliability of the data, we again give two sources, NBU and UEPLAC.

In contrast to the data on inflation rates, the sources are close to complete agreement on the value of the ratio of foreign currency deposits to total bank deposits, particularly in the period of the managed hryvnia, being never more than one percentage point apart since 1996. Moreover, notice that both series have two peaks, one in 1994 and another in 1999. These peaks correspond to the hyperinflation of the Karbovanets period, and the Russian crisis of the hryvnia period, respectively. This makes sense: these two events were the greatest stimuli to holding dollars from a store of value standpoint.

Here is something else to notice from these series. If we compute mean values for 1991 to 96 and 1997 to present for each series we have the following:

| | | | |
|---------------------|---|--------------|-----------|
| Monetary Regime I | – | 38% (UEPLAC) | 31% (NBU) |
| 1991-96 (Ruble/Krb) | | | |

| | | | |
|--------------------|---|-----------|-----------|
| Monetary Regime II | – | 37% (NBU) | 36% (NBU) |
| 1996 – 2001 (UAH) | | | |

Although we do not have enough data points for a statistical test, it is quite clear from the averages that the percentage of bank accounts in foreign currency has remained substantially the same over the entire period of Ukrainian independence, and this according to both sources. It would be a stretch to claim that we observe this consistency of foreign currency bank deposit holdings solely from store of value motives. In fact, we

can claim rather more: that we observe such a consistency also from medium of exchange considerations. To substantiate that claim, we turn to a search-theoretic model of dual currency transactions.

IV. Search-Theoretic Explanations for Holding Dollars in a Transition Economy

In what follows, we provide some theoretical support for the observed dollarization under both Monetary Regime I and II in Ukraine. Curtis and Waller (2000), henceforth C&W, present a one-country search theoretic model of money where two currencies (domestic and foreign) circulate as media of exchange, despite legal restrictions on the use of foreign currency for internal transactions. What is appealing about these models of money is that fiat money arises *endogenously* as a medium of exchange. Since even intrinsically valueless money can reduce the frictions associated with searching to find a suitable trading partner (i.e. someone who wants what you have to sell and who has what you want to buy simultaneously – a double coincidence of wants), money economizes on those search costs and will thus have value in the market.

C&W study the effects of various currency restrictions (fines in kind and currency confiscation) and the degree of enforcement on the acceptability of foreign currency and prices in the foreign and domestic currency. They find that monetary equilibria do exist where both the foreign (illegal) and domestic (legal) currency circulate and are accepted in exchange for goods and services, despite the existence of currency restrictions. This gives support for the observed dollarization in Monetary regime II.

C&S study two major cases, fixed prices and flexible prices. In a fixed price model, they describe conditions under which some enforcement methods (i.e., a sufficiently high fine) will drive the foreign currency out of circulation. At the same time,

other enforcement methods (i.e., a relatively low fine) can result in multiple monetary equilibria where an increase in the punishment for using illegal currency may reduce the use of illegal currency or may actually lead to more widespread use of the illegal currency. Similarly, in a flexible price model, they demonstrate that currency confiscation alone is not sufficient to drive out the illegal currency; this policy must be combined with a fine in order to drive the acceptability of illegal currency to zero. For some parameterizations, greater enforcement of currency restrictions may actually cause a depreciation of the domestic currency relative to the foreign currency. These results lend theoretical support for the observed dollarization in Monetary regime II in Ukraine, where dollarization persists at a stable level of GDP despite legal restrictions on the use of foreign currency in domestic transactions.

In transitional or developing economies, it is often the case that more than one currency circulates and can be used in domestic transactions. At the same time, currency exchange occurs easily and frequently. This raises the interesting question of why would agents want to trade currencies if both were usable in trade? In C&W (2001), their earlier study is extended to a two-country, two-currency framework, where two currencies (domestic and foreign) circulate in both countries and currency exchange can occur, despite the fact that these countries are 'dollarized' (i.e. multiple currencies circulate as media of exchange). One type of currency exchange they study is the exchange between a domestic agent holding foreign currency and a foreign agent holding domestic currency. An explanation of why a domestic agent might exchange a unit of foreign currency for a unit of domestic currency is that some countries have legal restrictions on the use of foreign currency for internal transactions, which can create a

‘home currency bias.’ Another possible explanation is that both currencies are accepted in trade, but the domestic currency is favored by the government for payment of public goods (i.e. through the collection of taxes). This again creates a ‘home currency bias.’ C&W study the effects of these types of currency restrictions and government transactions policies on the equilibrium values of both the foreign and domestic currency and show how these policies might generate a motivation for currency exchange.

One result of C&W (2001) is that a unique monetary equilibrium exists with currency exchange where there are no currency restrictions but the government adopts a transactions policy that favors the use of the domestic currency in certain transactions. This government transactions policy causes the domestic currency to appreciate relative to the foreign currency and thus creates an incentive for agents from different countries holding a ‘foreign’ currency (i.e. not their own domestic currency) to exchange currencies. Under a very severe transactions policy, i.e., the government accepts *only* domestic currency, there are parameterizations that support an equilibrium where ‘de-dollarization’ occurs in the sense that the foreign currency would no longer circulate among domestic buyers and sellers. This result from C&W (2001) helps to explain the dollarization observed in Ukraine under Monetary Regime I, prior to August 1995, when there were no legal restrictions placed on the use of foreign currency.

In these models, despite the presence of currency restrictions or government transactions policies, it is relatively difficult to drive from circulation the foreign currency, or ‘de-dollarize,’ simply because the foreign and/or illegal currency still serves the purpose of facilitating trade in a decentralized market environment with frictions. By frictions, we usually mean market frictions generated from a lack of double coincidence

meetings, but we might think of frictions more broadly. For instance, trade may be hampered by information problems, e.g., it is difficult to find out who is actually selling what you are looking for or what price is reasonable for the good you want to buy (conveyed through advertising, etc.). In transitional economies, this kind of information is not as easy to come by as it is in a market-oriented economy, and thus we might conclude that trade frictions are much more severe in a transitional economy, and therefore any monetary instrument that might help ease these frictions would endogenously arise and be useful in trade, despite any type of restrictions on its use.

V. Evidence from the Shadow Economy

Even though the dollar became illegal for transactions in 1995, it maintained its role in the shadow economy. As we saw from the search theory of the previous section, there exist monetary equilibria where the dollar continues to serve as a medium of exchange illegally, and Ukraine is certainly in such an equilibrium. The obvious place to look for evidence of such an equilibrium is in the shadow economy, and here, Ukraine is among the world leaders. Several studies (reported in Schneider and Enste (2000), which we follow) point to a large and growing shadow economy in Ukraine. The studies reported in Schneider and Enste all use the physical input method, pioneered by Kaufman and Kaliberda, to estimate the size of the shadow economy. For instance, more electricity is measured as *used* than is reported as *produced* by the power industry. That extra electricity can be imputed to the shadow economy. It reaches the shadow economy either in cash transactions (mostly in dollars) or via complicated barter transactions. The ratio of shadow economy economic activity to official GDP found by this method is striking. Averaging all the values reported in Schneider and Enste's admirable survey results in

the following pattern. Just prior to independence, the ratio of shadow economy to official GDP in Ukraine was 16%. During the period 1990-93, that ratio rose to 33%. In the period 1994-95, it rose still further to 50%. At that level, one-third of all economic activity in Ukraine takes place in the unreported sector of the economy—making it the biggest single sector. Given the critical role played by the dollar in the shadow economy, this helps account for the continued role played by the dollar in the overall economy. Other recent estimates by the World Bank and by UEPLAC, using both physical inputs and currency demand approaches, also support the figure of 50%.

As long as Ukraine has this large a shadow economy, the dollar will remain indispensable to its economic agents. Personal experience is also relevant to this conclusion. Suppose one is in the market for a high-end flat in Kyiv, renting for \$1000/month—a figure larger by an order of magnitude than the average monthly wage in Kyiv. Of course, the monthly rent will not be advertised in dollars---that's illegal. The real estate agent will tell you what the real rent is payable in dollars, and if you rent the flat, you sign a contract to that effect. At the same time, you sign a second contract---the official one---for the flat in local currency, say 200 UAH/month. The existence of an official contract lends the entire transaction a veneer of legality, and the landlord pays taxes on the monthly rent in hryvnia. But the lion's share of the economy activity (with these numbers, 95%) takes place in the shadow economy.

VI. Policy Implications of a Dollarized Ukraine

This paper has shown that Ukraine is dollarized to a considerable extent, with dollarization being driven by the inflation in the local currency, exchange rate crises, and

the shadow economy. Needless to say, there are policy implications of this situation. The main points we wish to make are the following.

First, until Ukraine makes real progress towards transition, the economy will remain dollarized at its present levels. As the EBRD (2000), the World Bank and other agencies have pointed out, progress towards transition in Ukraine is stalled. The level of corruption remains quite high, as measured by intransparency of government decision-making. Indeed, with a Transparency International ranking of 72, Ukraine ranks in the bottom quartile of all countries. As the EBRD makes clear, this stalled progress is reflected in a large shadow economy, with the dollar playing a major role in the shadows.

Second, real progress towards transition requires a government with an orientation towards Europe---and that government orientation does not currently exist to an appreciable extent. Although the Ukrainian ambassador to the United States can be heard calling for Ukraine's "integration into Euro-Atlantic economic and security structures," similar calls are rarely heard inside Ukraine. The only reform-minded Prime Minister of the decade of independence, one committed to closer ties to the EU, V. Yushenko, was voted out of office by the coalition of Communists and Oligarchs that dominate the Ukrainian Parliament at present. Following the path of Poland to EU is an impossible sell, given the political constellation of forces inside Ukraine.

Third, notice that exports and imports are denominated in dollars (NBU website), even though the U.S. is a small trade partner and direct investor in Ukraine. The EU is a much larger trade partner and direct investor, and this has spurred calls for even greater economic integration between the EU and Ukraine (Krause, 2001). But even the EU numbers pale beside those of Russia: Russia is by far Ukraine's largest single trade

partner and source of direct foreign investment. The trade relationship with Russia is in part testimony to the enduring explanatory power of the gravity equation in international trade (Gros and Steinherr, 1995). Indeed, one could argue that there exists an optimal currency area comprising Russia, Belarus, and Ukraine—and that the way to go for Ukraine is to join such a reconstituted Russian-ruble zone. However, this scenario also lacks local political appeal—even Ukraine’s Communist Party is divided on its merits. For the political forces supporting reform, anything that smacks of recruiting the Soviet Union in another guise is a non-starter.

Fourth, even as we write, the euro is about to replace the German mark permanently. The German mark has played a tertiary role in the Ukrainian economy, behind that of the dollar and ruble. From the standpoint of search theory, only one good alternative to the local currency is needed to maintain the equilibrium with dollarization. Under current conditions, that currency is the dollar. Still, one might expect more than a mere replacement role for the euro in the future scheme of things. Thus, Gros and Steinherr (2001) call for official euroization throughout the Balkans, and by implication, in the rest of Eastern Europe. Certainly, for candidates for EU membership in the coming enlargement, the euro looms large in their future. The position of the European Central Bank is clear: it would like to partner with the NBU to align more closely monetary events in Ukraine with those of the European Monetary Union (EMU) (Thimann, 2001). As Thimann says, “The ongoing enlargement process will bring the EMU to Ukraine’s doorstep and make the Euro-area its largest trading partner...Even though these developments still lie well in the future, it may be worthwhile to take them into consideration for Ukraine’s future development and integration with Western and Central

Europe. The European Central Bank stands ready to assist this process now.” Thus, Ukraine, while on no list for EU membership for the foreseeable future, may nevertheless prove to be a good candidate for euroization, with a big assist from the ECB.

It is conceivable that Ukraine could become more tied to the EU regional supply chain in the future. If so, it will be doing more of its contracts and business in euro. One possibility, far from remote, is a customs union between Ukraine and the EU, along the lines of the customs union between Turkey and the EU. Interestingly, the gains from such a customs union for Ukraine appear at best miniscule, and at worst, nonexistent according to recent (albeit preliminary) estimates (Harbuzyuk, 2001). If so, and considering the lack of enthusiasm within the EU Commission for such a customs union, we do not expect this scenario to be played out at present. Nevertheless, the situation inside the EU Commission could change abruptly—witness the latest Big Bang recommendation on EU enlargement—and the fundamentals supporting deeper trade ties between the EU and Ukraine could improve sharply in the medium run (Krause, 2001).

Suppose that Ukraine does eventually get on the road to Europe, as Poland has done in the last decade. That means transition to a functioning market economy and stable democracy, hallmarks of eligibility for EU membership. This would entail as a corollary development, increase in transparency, decrease in corruption, and contraction of the shadow economy. In this event, currently unlikely but possible, and given the stance of the ECB, we would expect to see the euro gradually replace the dollar in a euroized Ukraine. In that case, euorization would actually symbolize, as well as actualize, the process of joining Europe. But such a process is many years away, if it ever takes place at all.

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Table 1 - Inflation in Ukraine

| Year | Inflation Rate (%), NBU | Inflation Rate (%), UEPLAC |
|------|-------------------------|----------------------------|
| 1991 | 390 | ** |
| 1992 | 210 | 22 |
| 1993 | 10260 | 4744 |
| 1994 | 50 | 891 |
| 1995 | 280 | 377 |
| 1996 | 139 | 80 |
| 1997 | 110 | 16 |
| 1998 | 120 | 11 |
| 1999 | 118 | 23 |
| 2000 | 126 | 12 |

Source: NBU website, UEPLAC website

Table 2 – Exchange Rate, UAH to \$1

| Year | UAH to \$1, end of year |
|------|-------------------------|
| 1992 | 0.0064 |
| 1993 | 0.1261 |
| 1994 | 1.0420 |
| 1995 | 1.7940 |
| 1996 | 1.8890 |
| 1997 | 1.8990 |
| 1998 | 3.4270 |
| 1999 | 5.2163 |
| 2000 | 5.4345 |
| 2001 | 5.3556 |

Source: NBU website, figures for 1992-95 Krb converted to UAH

Table 3 – Ratio of Foreign Currency Deposits to Total Bank Deposits

| Year | Dollarization Ratio (%), NBU | Dollarization Ratio (%), UEPLAC |
|------|------------------------------|---------------------------------|
| 1992 | 20 | 16 |
| 1993 | 28 | 49 |
| 1994 | 42 | 56 |
| 1995 | 37 | 38 |
| 1996 | 30 | 35 |
| 1997 | 26 | 26 |
| 1998 | 39 | 40 |
| 1999 | 44 | 45 |
| 2000 | 38 | 39 |
| 2001 | 36 (June) | 37 (April) |

Source: NBU website, UEPLAC website