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By Invitation:

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The purpose of the present note is to remember and recast the past, at the start of the year, and to identify key milestones in the behavior of the foreign exchange market in Lebanon since 1993. Such an analysis is crucial not only to explain past trends and to draw lessons from history but also to delineate the prospects for the future. One has the added advantage of hindsight.

The analysis relies on monthly data on the net foreign assets of the banking system that are publically available on the web site of the Banque du Liban (BDL) up until October 2022. There are three notable variable series: net changes in the foreign assets of the central bank, net changes in the foreign assets of the commercial banking system, outside the central bank, and the sum of the two. All are denominated in US dollars. First, a graph is necessary to portray the temporal evolution of these three underlying variables. Instead of graphing net changes the graph will exhibit cumulated data, i.e. levels of foreign reserves¹. Two assumptions will be made. The first assumption is that net changes in the foreign assets of the commercial banking system average zero in equilibrium. Hence, this series will have a zero beginning balance on January 1993. This assumption is necessary because it is not possible to determine from published data the amount of this initial balance. While this may seem unreasonable because there is no underlying

¹ If the level and the change in foreign assets are denoted by FA and ΔFA respectively, and if the current time period is t then $FA(t+1) = \Delta FA(t+1) + FA(t)$. It follows that $FA(t+1) = \Delta FA(t+1) + \Delta FA(t) + \dots + \Delta FA(t+1-k) + \dots + \Delta FA(0)$ for any k such as $0 < k < t+1$. In other terms the cumulated level of foreign assets FA is generated recursively and dynamically.

growth in the reserve balances of the banking system, despite the increase in the magnitude of transactions, it is statistically verified, and is theoretically acceptable. It merely states that the trade account deficit is exactly counterbalanced and overcompensated by the revenues from international touristic, medical, consulting and educational services and transfers, which include workers' remittances, considered under the banner of exports of labor services. A corollary to this assumption is the need for a positive and sizable, eventually constant, level of foreign exchange reserves held by the central bank emanating from the financing of the import and other external bills. The level of these reserves on January 1993 is retrieved from the published balance sheet of the central bank account of foreign exchange for 1993 divided by the then current flexible rate of exchange of the US dollar which is also available on the same web site. Doing the dual adjustment leads to a value of the ending balance of the foreign reserves of the central bank on October 2022 of 13.8 billion of US dollars which is not totally unrealistic, although it is somewhat below the actual².

The three series are therefore displayed in the attached graph. By just looking at the graph three calendar breakpoints are evident: June 2002, June 2011, and July 2019. This results in four periods. The first is from January 1993 to June 2002. The second is between July 2002 and June 2011. The third is between July 2011 and July 2019. And the last is after August 2019 up until October 2022. The behavior of the three series is studied to gauge the peculiar international characteristics during each sample interval. Two characteristics will be discussed: stability in the total balance of payments, which is equal to changes in BDL foreign reserves, and private economic stability, which is equal to changes in the foreign assets of the banking system, outside BDL. The first characteristic gauges over and under valuation of the foreign exchange rate. And the second gauges the steady state external performance of the whole economy.

During the first period, the three series had an average change in foreign reserves of 0.242, 10.191, 11.390 million US dollars, for the commercial banking system, for BDL, and for the total banking system respectively. Statistically these three estimates are immaterially different from zero. The average level of reserves was - 0.72, 4.60 and 4.03 billion US dollars respectively. The period witnessed two different exchange rate regimes: a flexible one from January 1993 till November 1998, and a pegged one from December 1998 till June 2002. Whatever the regime three conclusions emerge. The level of and the change in foreign reserves for the banking system are close of being nil which, under the aforementioned

² The discrepancy arises because the initial position was assumed at zero, whereas in actual fact it was about \$2 billion.

assumption of stability and equilibrium, mean that the banking system, outside of the central bank, was in a stable steady state condition. The same also applies for the changes in the reserves of the central bank and of the total system. As a consequence the exchange rate was correctly valued, which is surprising given the existence of two distinct currency regimes. Finally, the level of foreign reserves of the central bank was adequate enough given the circumstances. In brief, this first period can be described as being an era of financial stability and economic prosperity.

During the second period, the average change in reserves of the banking system, without the central bank, was also small and immaterial at 3.31 million US dollars, while, in levels, the average was 242 million US dollars. Hence the banking system was in a stable equilibrium. However the same cannot be said about the reserves of the two other entities. The foreign reserves of the central bank grew at a monthly rate of 2.24%, or about 26.9% per annum. The foreign reserves of the total banking system grew at a monthly rate of 2.18%, or about 26.1% per annum. While the increase in reserves is indicative of a positive outcome it can be interpreted negatively too. As such one might argue that the build-up in reserves was a sign and a symptom of exchange rate undervaluation. In other terms by resorting to net foreign currency purchases the central bank was avoiding and postponing the appreciation of the Lebanese pound. Total foreign reserves of the central bank were an average 13.77 billion US dollars, and the maximum level was 28.29 billion US dollars, and this maximum was reached towards the end of the period. Obviously such an enormous increase in foreign reserves cannot be considered as casual.

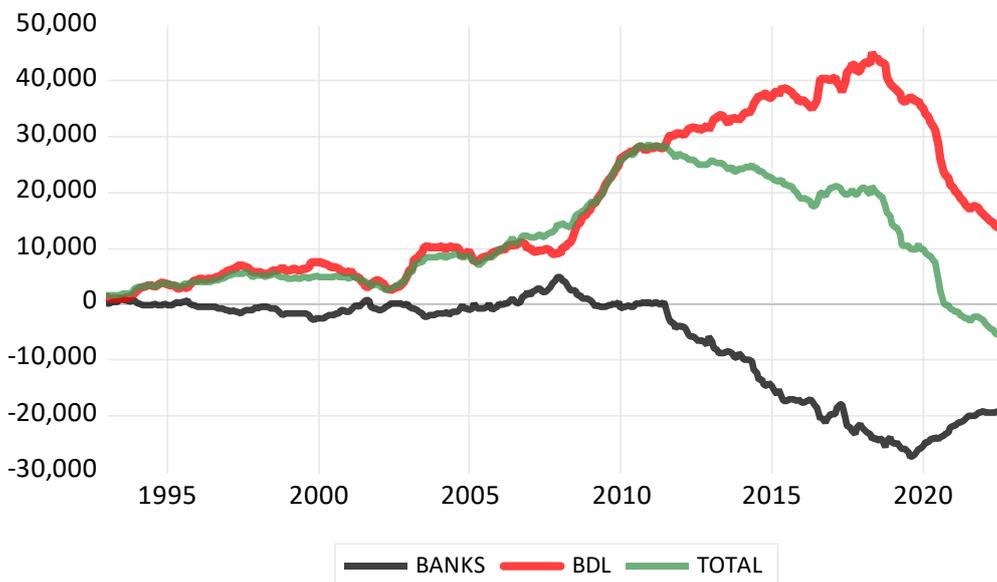
During the third period, the average change in foreign reserves of the banking system, without the central bank, was US -279 million, and is statistically materially different from zero. Moreover, the banking system was in an unstable disequilibrium, especially since the total foreign reserves deficit was an average negative level of -15.2 billion US dollars. Moreover this reserve deficit was systematically negative for all days in the stated period. Surprisingly the level of reserves of the total banking system, inclusive of the central bank, was 21.67 billion a little bit less than the same level during the previous period. A one dollar increase in the total level of reserves is associated with a 1.03 dollar increase in level of reserves of the central bank. What happened during this period is exemplary. The banking system, without BDL, ran a chronic deficit, the reserves of the overall system did not change much, and the BDL reserves ran a chronic accretion. It is as if as the central bank was increasing its reserves at the expense of the banking system in a zero sum game. The deficit of the banking system was

associated with a buildup of BDL foreign reserves. Hence one can identify two disequilibria: one in the banking system, and one in the foreign exchange market. The banking system was in an unsustainable deficit, and the foreign exchange rate was greatly undervalued because the BDL was undergoing an immense increase in foreign currency holdings. One must note that the maximum level of BDL reserves occurred during this period and reached at 45.13 billion US dollars. Fiscal unsustainability, together with high interest rates, may have contributed to this reserve buildup.

During the last period the banking system recouped part of its deficit by adding an average of 159 million US dollars per day and decreasing its deficit from -26.1 billion to -19.5. Therefore there was a limited step and a benign move towards equilibrium, but, despite the fall in output, and the loss in value of the foreign exchange rate, labor exports did not topple the totality of the trade deficit. As for BDL it was losing reserves at an average rate of -495 million US dollars per month, bringing the level of reserves back to 13.8 billion US dollars at the end of the period. While this is consistent with a crisis period, and an overpricing of the US dollar, the fact that the banking system partially eliminated its deficit is testimony to its resilience, but may otherwise be due to capital controls on USD withdrawals, which led to a lower foreign exchange trading volume and turnover.

A question remains. The Lebanese Parliament is debating increasing the limit of USD withdrawals according to BDL circular number 158 from USD 400 to USD 800. Can the banking system cope with such a new regulation? A crude analysis would make the following calculation that an additional USD 400 per month, and given one million depositors, will amount to around US dollars 5 billion a year. Of course this assumes a financial status quo, but given the current fundamentals, it is definitely a huge burden. On top of that, promised nominal salary and pension increases for the public sector and for teachers in the private educational system, will aggravate the problem further. We may not know exactly what should be done to revert quickly to normal conditions, but we surely know what should not be done.

Foreign Reserve Levels in millions of US dollars



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