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Boom Years	RR	TR	CC	MB	M3	GDP	m <sub>1</sub>	V	TR/RR	AD	m <sub>2</sub>
Dec.08	18.46	38.79	2.50	41.29	103.51	43.90	2.51	0.42	2.1	101.01	2.60
Dec.09	22.86	53.23	2.73	55.96	123.73	53.37	2.21	0.43	2.3	121.34	2.28
Dec.10	25.76	60.78	3.09	63.87	138.91	57.96	2.17	0.42	2.6	135.98	2.23
FE Years											
Dec.16	36.54	134.61	5.28	139.89	200.19	77.11	1.43	0.39	3.7	195.34	1.45
Dec.17	37.54	155.89	5.66	161.55	208.96	79.94	1.29	0.38	4.2	203.76	1.31
Dec.18	37.81	196.29	5.86	202.15	212.99	82.76	1.05	0.39	5.2	207.71	1.06
Crisis Years											
Dec.19	33.58	177.47	10.56	188.03	202.83	80.20	1.08	0.40	5.2	192.57	1.08
Dec.20	28.28	166.48	30.91	197.39	200.01	95.70	1.01	0.48	5.8	170.28	1.02
Dec.21	25.99	164.28	45.76	210.04	201.07	221.40	0.96	1.10	6.3	159.22	0.97

All figures are in Trillion LBP; all monetary data from BDL; GDP data from CAS except Dec.21 from IIF.

We will start this note with a simple theoretical, but essential, discussion. Accordingly, two of the most important operational concepts in monetary economics are the money multiplier and the velocity of circulation. The money multiplier captures the increase in money supply that arises from the process of deposit creation by the banking system: an initial increase in deposits will increase reserves that banks are required to keep only a fraction of, while the rest will be extended as loans and investments that in turn will generate new deposits into banks and so on, such that in the process more deposits are accumulated and more money is created. More generally, the functional form for the money multiplier is expressed as:

$$(1) M = m_1 \cdot MB \quad \text{or} \quad m_1 = M/MB$$

Where  $m_1$  is the money multiplier that measures how much money  $M$  can be generated from the monetary base  $MB$ , given that the monetary base is equal to total reserves  $TR$  plus the aggregate deposits  $AD$  that arise from total reserves  $TR$  or  $m_2 = AD/TR$ . The two money multipliers are to a great extent the same and reflect each other almost perfectly.

The second concept is the velocity of circulation  $V$  and it is functionally expressed as follows (also known in the economic literature as the Equation of Exchange):

$$(2) MV = GDP \quad \text{or} \quad M = GDP/V$$

Equation (2) simply states that money  $M$  circulating at the rate of  $V$  generates economic activity identical to (nominal)  $GDP$ . It is clear from (2) that  $GDP$  can be increased from either increasing  $M$ , or  $V$ , or both. An increase in  $V$  means that people are demanding or holding less money and using it instead to transact more goods and services. As such, the  $M$  in equation (2) expresses money demand, whereas for comparison the  $M$  in equation (1) expresses money supply. Equilibrium in the money market requires naturally that supply be equal to demand, or:

$$(3) GDP/V = m_1 \cdot MB$$

$$(4) V = 1/m_1 \cdot (GDP/MB)$$

Equation (4) reveals that  $V$  is inversely related to  $m_1$  weighted by the ratio of  $GDP/MB$ . This is quite an interesting relationship as it postulates that when  $m_1$  falls  $V$  has to rise, given  $GDP/MB$ : a fall in  $m_1$  means that the process of deposit creation is slowing down and in consequence  $V$  has to rise to

compensate for this slowdown and to effectuate a faster process of money circulation for economic transactions purposes.

How did all these variables fare in pre-crisis and crisis Lebanon? And what were their economic implications? The Table above records the data for all the relevant variables for three periods: the boom years from 2008 to 2010; the financial engineering (FE) years from 2016 to 2018; and the crisis years from 2019 to 2021. Before we discuss each period, a note on required reserves (RR) is in order. For Lebanese banks, BDL regulations require all banks to keep 15% in RR on their USD deposits and 15% on their LBP current deposits and 25% on their LBP time deposits. But as we will see, Lebanese banks have kept with BDL reserves that were way in excess of RR. Another useful note is that, in Lebanon, the relevant M measure is M3 which constitutes CC and all deposits in both LBP and USD.

For the initial period, the boom period, what stands out first is that TR averaged 2.3 times RR as banks have made placements (investments in CDs and deposits) with BDL. The main reason behind those placements was that banks had excess liquidity but limited investment outlets in a small country like Lebanon, so BDL was a safe and rewarding option (at rates in excess of 3%). During that 3-years period, aggregate deposits AD increased substantially by about 35 trillion LBP to 136 trillion LBP; and so did M3 which rose to 138 trillion LBP. The money multiplier  $m_1$  (and similarly for  $m_2$ ), however, fell from 2.51 to 2.17 as the ratio TR/RR increased from 2.1 to 2.6, indicating that relatively more reserves were put at BDL, causing  $m_1$  to fall in the process. Surprisingly,  $V$  stayed constant at 0.42, but that is because the ratio GDP/MB decreased as GDP increased at a slower rate than MB, the former from 43.90 trillion LBP to 57.96 trillion LBP while the latter from 41.29 trillion LBP to 63.87 trillion LBP. So the boom period was largely a normal period for banks, as their role as financial intermediaries in the economy stayed more or less intact.

The second period, the FE period, is perhaps the most interesting. The recurrent balance of payments deficits since the beginning of the Syrian war in 2011 forced BDL to accumulate more foreign reserves (mostly from banks, it turned out) to protect the exchange rate peg. As a result, it undertook FE operations with commercial banks that saw the TR/RR ratio rise significantly from 3.7 in 2016 to 5.2 in 2018! This was a product of two factors: first, higher interest rates (in excess of 8%) offered by BDL to entice banks to make placements with it; second, and more so, regulatory measures that forced banks to deposit more with BDL, such as the measure to keep with BDL all USD deposits converted from LBP by banks' clients during that period. This, of course, meant considerably more reserves being placed at BDL and less being injected into the economy – or in standard economic terminology, it means that more excess reserves are being leaked away from the process of extending loans and creating deposits -- and consequently a bigger fall in  $m_1$ : from 1.43 in 2016 to 1.05 in 2018. But what is interesting is that aggregate deposits AD increased by about 12 trillion LBP only to 207.71 trillion LBP; and equally interesting, GDP rose by even less, from 77.11 trillion LBP to 82.76 trillion LBP. As to  $V$ , it remained constant at close to 0.39, despite the fall in  $m_1$ , and for the same reason as in the previous period, which is that GDP increased by far less than the monetary base MB. So the FE period was an up-normal period for banks as their intermediation role was dented quite noticeably. And it was largely due to the fact that monetary authorities assumed that preserving the exchange rate peg takes precedence over financial propriety and real-economy considerations.

The last period, the crisis period, is the period “where the chicken came home to roost”. In the last quarter of 2019, BDL could not protect the peg any longer because of its dwindling FX reserves that fell by \$20 billion since the height of its FE operations. What is truly interesting, if not tragic, is that in the experience of most countries a foreign exchange crisis does not lead to a banking crisis; but in Lebanon it unfortunately did, because banks had most of their foreign liquidity placed at BDL, which in turn constituted all the hemorrhaging in FX reserves. During the crisis period, the ratio of TR/RR continued to rise from 5.2 to 6.3, mostly because of a reduction in RR that was driven by a decline in aggregate deposits AD -- or more likely, a run on deposits -- which fell from 192.57 trillion LBP to 159.22 trillion LBP. Not surprisingly,  $m_1$  continued to fall to reach 0.96. But this time the velocity of circulation  $V$  started to rise as nominal GDP rose much faster than MB, increasing from 80.20 trillion LBP to 221.40 trillion LBP!. And though the rise in  $V$  is unlike what happened in the previous two periods, it is nevertheless to be expected in inflationary times, since it is associated with the typical case of “too much money (CC) chasing less but more expensive goods and services”, as the increase in nominal GDP in 2021 was split into a 10.5% fall in real output but a huge 141.8% increase in the GDP deflator. The real causality behind all these numbers, of course, has been commercial banks as BDL liabilities, primarily banks' total reserves TR or what BDL officially calls “Deposits with BDL”, turned toxic and undermined in the process banks' foreign liquidity, thus resembling a unique case where the origin of the crisis lies not with banks but with the regulator!. To get a feel of the magnitude of this crisis, banks' foreign currency deposits with BDL are now at more than \$80 billion whereas BDL's liquid FX reserves are only a meager \$10 billion!

The result is that what is at stake is the very survival of Lebanese banks and whether they will ever play again their indispensable intermediation role.

In conclusion, it is relevant in this context to recall an important economic idea, which is the “resource curse”. It is usually discussed in the context of oil-rich countries with weak institutions and little economic diversification; and where an oil-boom leads to more economic theft because of corruption, in addition to an overvalued exchange rate that wrecks the tradeables sector of the economy. Though the analogy is by no means perfect, Lebanon had managed to amass huge deposit “resources” – especially after 2007 when its banking sector accumulated a lot of deposits because of its safe haven position in the midst of the global financial crisis – with its deposits to GDP ratio exceeding 300%. Consequently, and given the country’s limited economic base and the unsophisticated nature of its capital markets, banks found themselves with considerable liquidity which BDL, through a combination of high interest rates but mostly regulatory measures and circulars, has succeeded to capture since 2011 – and more so since 2016 -- to fund the recurring balance of payments deficits and to defend the exchange rate. Perhaps, had the deposit base been more manageable and banks less successful in attracting more deposits, the reliance on their foreign deposits by BDL would have been a lot less and even non-existent; and, as a result, the crisis or the “curse” would have been averted, and both the government and BDL would have had – even forced by necessity -- to change their unsustainable policies, a wasteful fiscal policy for the former and an unsupportable fixed exchange rate system for the latter. Because, in the final analysis and in a fundamental sense, it is such policies that were first and foremost the cause of the crisis!. So, one can only hope that these practices and such policies are not repeated in post-crisis Lebanon, if and when we ever get there.

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