Dr Azar is Professor, Faculty of Business Administration and Economics, Haigazian University. This note is inspired by a study by Dr Ali Bolbol and Ms Sara Hadchiti, both from BLOMINVEST Bank, entitled Lebanese Budget Deficit Financing in H1 2020: A Critical Look (Lebanon Brief, September 2020, Week 3) . I am grateful for comments with Dr. Ali Bolbol.

The purpose of this note is to explain the recent depreciation of the Lebanese pound against the US dollar after October 2019, the date of the start of the civil uprising which led to a dollar and a banking crisis. The posed question is the following: Can fundamentals explain the manifest misfortune of the pound? The fundamentals selected stem from two theoretical underpinnings: the presence of a parsimonious currency demand function, and the notion that excess demand for the US dollar in the alternative spot market is due to an excess supply of the currency in circulation. Although the modeling is simple it is not simplistic, as we shall see below. It will become evident that this note is consistent with a certain degree of monetarism. Briefly, the exchange value of the pound is taken to be proportional to the amount of currency in circulation, which is the narrowest measure of a money supply. However, this assumes that currency demand is constant, which is not the case. Currency demand has fallen notoriously which means that the exchange value of the pound does not only depend upon actual currency in circulation but should be adjusted for dwindling currency demand.

We will begin by the currency demand function. According to the Cambridge classical economists, the demand function of money, which includes currency, depends upon the level of economic activity, and upon the total level of monetary transactions. Real, inflation adjusted, activity is measured by the monthly central bank's coincident indicator. This indicator reflects consumer and business confidence, and is usually found to mirror well developments of the real side of the business cycle. The level of transactions is approximated by the amount of cleared checks in Lebanese pounds, and should stand for nominal repercussions. The regression equation, estimated by ordinary least squares, together with some econometric diagnostics, are found to be1:

$$ln(currency) = -5.0240 + 0.8648\,ln(indicator) + 0.5806\,ln(clearance)$$
$$R^2 = 0.9675 \qquad Fisher\;F-statistic: 2893.793\;(p-value < 0.000001)$$

The residuals of this regression are stationary, and thus have constant averages and variances, from which one can infer that the relation is not spurious. These results can be interpreted as follows. The goodness of fit is substantial: 96.75% of the variation in the (log of the) currency variable is explained by the (log of the) coincident indicator, and by the (log of the) amount of checks cleared in Lebanese pounds. As regards the statistical significance, the Fisher F-statistic is quite elevated, implying that the relation is not due to chance. This relation predicts that a 1% increase in real economic activity leads to a 0.8648% increase in the demand for currency. And a 1% increase in checks cleared increases the demand for currency by 0.5806%. It also shows increasing economies of scale for money since the slopes (0.8648, and 0.5804)) are lower than. This is as expected from a narrow definition of the money supply, like currency. The relation is estimated for the period from February 1995 to September 2019, i.e. a sample size of 296 observations, a sample dictated by data limitations on the web site of the Lebanese central bank from where the data is retrieved.

---

1 The actual regression includes a binary variable that accounts for the outliers during August 2006, date of the Israeli war on Lebanon.

The second step is to predict the monthly currency demand for the out-of-sample period from October 2019 till June 2020. This is done by replacing in the function above the actual values of the coincident indicator and of cleared checks for that same period, which is October 2019 till June 2020, the last available statistics, and solving for the level of currency. The generated series is claimed to represent the demand for currency according to fundamentals. This is compared with actual values of the currency variable during the same forecast period, i.e. from October 2019 till June 2020. The results are posted in the below table.

Table: Forecasting the exchange value of the Lebanese pound.

Forecast date	Predicted demand for currency	Actual Supply of currency	First lag of the Implied foreign exchange rate of the US dollar	Actual foreign exchange of the US dollar at month-end
2019M10	4,018.0229	7,305.42	1,901.95	1,700
2019M11	5,204.113	9,054.97	2,740.881	1,800
2019M12	5,290.177	10,563.5	2,622.996	2,150
2020M01	5,018.865	11,957	3,010.197	2,127.5
2020M02	4,742.088	13,051.2	3,591.485	2,150
2020M03	2,685.303	14,450.5	4,148.95	2,470
2020M04	2,185.621	15,695.2	8,112.353	2,820
2020M05	2,204.243	17,844.8	10,825.53	4,150
2020M06	2,740.921	19,287.4	12,204.2	8,600

Source: Banque du Liban, lirarate.com, and own calculations.

In the table the first column is for the forecast period. The second column is for the predicted monthly demand of currency by the above econometric and fundamental regression. The third column is for the actual level of currency in the market. The fourth column is for the first lag of the predicted foreign exchange rate. The lag is reported because of delays in the forecasts. This column is calculated by multiplying the pegged value of the pound, i.e. LBP 1507.50, by the actual supply of currency and by dividing the result by the predicted demand for currency. This assumes that the depreciation of the pound is proportional to the progression of the ratio of actual currency supply onto the predicted currency demand. The difference between the actual currency level and the predicted demand for currency is considered to be the excess supply of currency, which, in other terms, stands for the excess demand for the US dollar in the parallel market. The fifth and last column in the table is for the actual level of the exchange value of the Lebanese pound.

The above table, in particular columns 4 and 5, shows that the predicted exchange value of the Lebanese pound is not that far apart from the actual value in the parallel market. The correlation coefficient between the two series, an index of co-movement, is 0.8568, which is relatively high and significant. Since economic participants are essentially forward looking, they pay attention to all relevant future occurrences, which go beyond the sample period. Indeed, there is some kind of underestimation of the exchange value of the pound, probably due to sampling error, or to a lower guess of the currency demand than the one predicted. The market is maybe expecting a less severe deterioration of the economic outlook in the long run than is assumed by the model in this note. This positive assessment of the outlook could be explained by expectations of a resolution of the financial crisis in the long run. Additionally, underestimating the exchange value of the pound might come about from overstating the actual data on the supply of currency. The reported data on currency includes the currency held by banks at their vaults, and this amount is not directly available to market participants. Finally, part of the reasons for underestimation may be due to the subsidization by the

central bank of basic goods and commodities, which has notably reduced the demand for US dollars, especially by traders. An important corollary of this interpretation is that removal of these subsidies could depreciate the exchange rate to levels close to those given by the implied rates. Moreover, no or little subsidies will lead inevitably to consumer price hikes, which, ceteris paribus, will lead to further deterioration.

That said, the conclusion is strong: the foreign exchange rate evolves according to the level of excess supply of the currency, or excess demand for the spot US dollar rate. Surprisingly, the implied theoretical depreciation is worse than the actual depreciation. It is not clear who or what determines the supply of currency. Usually it is assigned to the monetary authorities, through their control of the money supply by open market operations. This means that the currency supply is exogenous to the model, and is therefore a driving factor, or perhaps a cause, of the depreciation of the pound, and not otherwise.

For your Queries:

BLOMINVEST BANK s.a.l.

Research Department Bab Idriss,

Weygand Str. POBOX 11-1540

Riad El Soloh Beirut 1107 2080

Lebanon

Research@blominvestbank.com