Understanding The 2019-2020 Banking and Financial Crisis in Lebanon

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Abstract
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Keywords
Lebanon, Currency, Crisis, Financial Crisis, Hyperinflation, Financial Engineering, BDL, Lollar, Inflation, Default

Disciplines
Accounting | Finance and Financial Management | International Economics | Macroeconomics | Public Economics

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Understanding the 2019-2020 Banking and Financial Crisis in Lebanon

By

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An Undergraduate Thesis submitted in partial fulfillment of the requirements for the

WHARTON RESEARCH SCHOLARS

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Abstract

This paper explores the nature of the 2019-2020 financial crisis in Lebanon through the lens of the financial engineering operations instituted by the central bank, Banque du Liban (BdL). This study seeks to explore the effects of the financial engineering policy on the BdL balance sheet and the commercial banking system, whether the financial engineering policy met its stated objectives and the discrepancies in rating agencies’ evaluation of Lebanon’s outlook. This paper uses a constructed BdL balance sheet and an aggregate banking system balance sheet that both use standardized definitions and allow for comparisons and tracking of flows between the two systems over time. The analysis suggests that while in the short term, certain goals of financial engineering were met, it was not a sustainable long-term policy in the Lebanese environment of increasing current account deficits, lackluster GDP growth, and a currency peg to the US dollar. Another conclusion is that in the long term, financial engineering operations - while very complex and hard to track - amounted to BdL protecting its stated equity by adding fictitious assets on its Balance Sheet through the “Other Assets” entry. Through this mechanism, it temporarily obscured losses until Other Assets grew so large that it raised concerns over its status as an asset. This led to a short term increase in rating agencies’ outlook on the country during that time interval. Finally, financial engineering exponentially increased the private financial sector’s exposure to the Lebanese government, thereby increasing the banking system’s insolvency risk.
Introduction

The breakdown of the Bretton-Woods agreement, among many other factors, ended the period of macroeconomic stability in the 70s. However, the global banking sector remained mostly stable until the 80s, when a series of banking crises overtook the world. In the decades since, experts have spent significant effort determining the causes for these crises. In an effort to better prepare for economic shocks, craft better policy, and find new lenses to evaluate risk in foreign investments.

Lebanon has struggled with the reverberations of the Syrian crisis, which started in 2011. Since the two countries shared many economic, trade, and political ties, the deterioration of the economy in Syria led to increased uncertainty about Lebanon’s economic growth and decreased trust in its financial sector, which until then had been the most reliable in the country. The Lebanese Pound (LBP) had been pegged to the US Dollar since 1997, a policy aimed at increasing trust after the civil war. Thus, to boost the country’s foreign capital inflows. Banque du Liban, Lebanon’s central bank (BdL), instituted several financial engineering operations carried out through commercial banks (Harake, et al. 2016). While at the moment, these operations seemed successful in raising the inflow of foreign reserves through increased interest rates and attractive investments, they substantially increased costs from BdL’s balance sheet and increased exposure to macroeconomic risk at a time of political crisis, anti-government protests, and massive budget deficits in the Lebanese economy. This perfect storm of political and economic factors led to the eruption of its 2019-2020 financial crisis.
Understanding how the continuous reliance on the USD peg, the financial engineering operations, and increased interest rates affected the banking sector and led to the 2019-2020 financial crisis is key to inform policymakers and regulators in the future how to deal with similar crises around the world. Also, understanding exactly how these factors influenced the Lebanese economy will be very useful for policymakers who seek to create new programs to help the country recover from the crisis. The increased volatility in the Middle East and all around the world suggests other banking and currency crises are likely to occur, especially in countries similar to Lebanon in their reliance on foreign currency inflows (especially through remittances) as a key part of their current account. Thus, formulating a strong policy response must be informed by data and well-studied precedent, which this research hopes to create. Additionally, insurers and credit rating agencies can benefit from this research because it will inform a new perspective to be used while evaluating how factors such as changing interest rates, central bank reserves, and increasing dollarization play into the risk of default and unlock tools to allow more accurate predictions earlier. Finally, a better understanding of the factors that influence high-risk sovereign credit in emerging markets should be useful to investors who look to invest in these securities. This is especially pertinent considering the increased popularity of emerging-market bonds in a global economy where negative or zero interest rates have made developed countries’ bonds less attractive for investment.
Literature Review: Crisis Response Around the World

As noted above, Lebanon was suffering from an exogenous decrease in economic activity, investments, and remittances due to spillover risk from the Syrian Crisis. The effect that crises around the world have on total national welfare depends largely on the policy response, its efficacy, and speed. The beginning of most policy responses is injecting liquidity into the economy to stymie bank runs. While both higher and lower-income countries deploy this support, higher-income countries tend to use a wider array of instruments (e.g. central bank swaps) while lower-income countries maintain liquidity support as a containment tool for longer. Another important response in banking crises is bank recapitalization (e.g. TARP in the US), which was much more likely to occur in higher-income countries, or high-dollarization countries; as lower-income countries lacked enough institutional control and trust to enact those policies effectively (Laeven, et al. 2018).

One last notable policy enacted mainly in high-income countries, and, interestingly, low-income countries with low dollarization, is deposit guarantees. Whether implicit or explicit, government-issued depositor guarantees protect banks and the trust in the system, which counterbalances some of the more difficult-to-control effects of a banking crisis (e.g. bank runs, capital flows). However, deposit guarantees have only been found to be effective in countries with strong institutional environments, especially respect for the rule of law, low corruption, good contract enforcement (Noy 2004), strong credit ratings and abundant reserves. Lebanon instituted its financial engineering policy first and foremost to restore capital flows into the country, by offering high-interest rates, protected by the historic trust attributed to Lebanon’s robust banking system. The central bank’s liabilities were increasingly in US dollars, in a peg environment where
BdL could not print more currency to absolve it of liabilities and had to cover the price of maintaining the overvalued USD/LBP rate. Due to this overvalued rate, the Lebanese had undue strong purchasing power and ability to purchase imported goods, which destroyed value over time.

**Figure 0: Interest rate offered by banks on USD in Lebanon Source: Trading Economics**

The force of the external shocks was amplified by fiscal mismanagement (García-Herrero 1997), bad loans and weak capital asset ratios (Gonzales-Hermosillo 1999), financial liberalization in low-regulation, high-corruption environments (Demirgüç-Kunt, et al. 2005), and unsustainable capital flows (Kaminsky, et al. 1999).

These factors often develop in intricate and interconnected ways, but it is pertinent to explore the specific measures in which they manifest. One such important measure is that of capitalization. Capital asset ratios measure a bank’s capital in relation to its risk. Conventional
wisdom would indicate that a decrease in solid assets would be followed by a decrease in risk-taking. However, in many crises, banks tend to engage in more risky behaviors (interest increase, bad loans, etc.) as a response to the decrease in assets to increase returns. This is much more common in developing nations rather than developed ones, due to the weaker regulations (García-Herrero 1997). Solid assets can be measured by central bank reserves (foreign currency especially) in high-reserve regimes where commercial banks hold large foreign currency reserves at the central bank (such as Lebanon), or foreign currency notes held by the country’s fiscal authority. Another common measure is dollarization: countries with high dollarization and a large share of foreign and government-owned banks maintained a more stable deposit base by shifting to dollar-denominated deposits. However, it is pertinent to note that Lebanon does have very high dollarization (Poddar, et al. 2006) a factor that contributed to the negative feedback loop of its banking crisis instead of being a buffer. Finally, an important measure is capital flows and how it interacts with exchange rate regimes. The balance of payments and current account deficit is an important and effective indicator used to monitor changes in outflows. There are many other important indicators to be measured, including but not limited to interest coverage, foreign deposits vs. foreign asset base, RGDP/Capital, M2/foreign reserves, central bank credit to the banking system, and real interest vs real GDP growth (Kaminsky, et al. 1998).

Eichengreen et al. (1998) find that a commitment to a currency peg may reduce the probability of banking crises by disciplining policymakers. Additionally, another study (Calvo 1996) concludes that developing countries experience significant exchange rate volatility due to the high dollarization of their liabilities (mainly deposits). These countries tend to benefit from the additional transparency and credibility associated with fixed exchange rates, which can stymie the negative effects of a crisis. This is a pertinent study, as pegged exchange rate and high liability
dollarization are important features of the Lebanese banking system. This body of work will inform how the Lebanese crisis is described and then compared and contrasted with other crises across time in this paper.
Financial Engineering

The financial engineering Swap policy was instituted by BdL starting May 2016 to fix some of the mounting pressure on the Lebanese economy and financial system. When introduced, this set of measures was touted as an ambitious bid to revitalize Lebanon. In a circular outlining the measures, BdL stated that financial engineering was a “win-win situation, whereby it didn’t burden the Central Bank [nor] the Lebanese Government with any costs. On the contrary, it enhanced both BDL’s balance sheet and Lebanon’s credit profile” (BdL Circular, Nov 2016). The financial engineering policy had seven stated objectives:

1. Strengthening BDL’s foreign currency assets and balance sheet
2. Increasing Commercial Banks’ capital reserves
3. Increasing LBP liquidity through Quantitative Easing to strengthen the currency
4. Reduce the government cost of borrowing and debt profile
5. Improving BOP status through increased internal demand and productivity
6. Targeting a positive inflation rate below 4%
7. Improving the country’s sovereign debt rating and analyst consensus outlook

Financial engineering was carried out through the following mechanism:
Figure 1: Swap cash flows

Figure 2: Swap T-Account visualization
The first component of financial engineering allows BdL to swap LBP denominated Treasury Bonds with newly issued Dollar-denominated Eurobonds of equal value (on the 1507 LBP/USD exchange rate). The second component consisted of BdL issuing USD CDs to correspondent banks backed by Eurobonds at high-interest rates in exchange for “fresh” USD cash. The third component, which can be considered as the incentive for banks to participate in financial engineering, essentially consisted of BdL discounting at 0% an amount equal to the transaction in step 2. Some LBP denominated Treasury bonds and CDs held by banks on their balance sheet paid an effective interest of 15% in LBP. The IMF described this as a “money-financed capital injection without any equity stake in return equivalent to 10 percent of GDP, which helped strengthen banks’ capital buffers” in its 2016 initial staff report on the financial engineering operation.

Immediately after the implementation of this policy, Lebanon’s Balance of Payments (BOP), as well as BdL’s Net Foreign Assets (NFAs), and foreign securities holdings surged. Within 5 months, NFAs surged by $4.1B, and the overall balance of the BOP increased from -$1.65B to +$0.37B (Chbeir 2018). This development seems to be extremely favorable for the country yet is widely accepted to have resulted in the collapse of the banking system. My paper aims to dissect the direct results of the financial engineering Swap policy and explore its relationship with Lebanon’s financial and banking crisis. This paper will explore the following questions: What effects did the financial engineering policy have on the BdL balance sheet and the commercial banking system? Did the financial engineering policy meet its stated objectives? If not, why did rating agencies raise Lebanon’s outlook after its implementation?
Data & Methodology

To understand the effects of the financial engineering policy, it is important to conduct a holistic review of the central bank’s balance sheet, as well as studying the Commercial Banks through which the operations were conducted. Since the Lebanese government and BdL were not transparent with the exact scale of transactions and through which banks they were carried, these must be studied through an understanding and visualization of their effects. I collected publicly available data from BdL’s public records and cross-checked them with World Bank and IMF databases.

First, I used this data to construct a standardized version of BdL’s balance sheet monthly from EOY 1999 until November 2020, using 261 entries. The BdL data was manipulated to reflect a continuum of changes and flows through the last two decades. This includes backsolving for the Pre-2003 deposit plugs in Liabilities as the accounting standard was changed during that year, adjusting for the interchangeable use of “Assets From Exchange Operations” and “Other Assets” before 2015 by standardizing definitions and creating a proportional balance sheet insulated from rapid monetary base expansions by comparing the ratios of each balance sheet entry to the total size of the balance sheet (Assets or Liabilities plus Equity) instead.

Second, I used similar data sets from BdL, the World Bank, and BLOM Banks’ BLOMInvest research reports to construct an approximated generalized balance sheet of the commercial banking system in Lebanon from end-of-month (EOM) March 1997 until November 2020, using 286 entries. An important part of the process was matching entries from the original accounting standard (Pre-implementation of the IFRS 9 accounting standard in 2018) with the new entries. Since there was no publicly accessible documentation of how IFRS 9 was
implemented, this was done using CY 2017-2018, which were documented using both accounting standards and provided a pathway to disentangle the differences. This process yielded an approximately perfect match with between 0.27%-2.05% of unclassified assets, which we can consider our margin of error for any conclusion made using this data.

Third, I compared and contrasted data from both balance sheets to unwind financial engineering transactions. I delineated for each transaction what effects and outcomes BdL promised would result from financial engineering and checked for the effect’s presence in the short term (6-12 months), in the medium term (2-3 years), and through the crisis (4½ years).

Fourth, I extracted multiple datasets from the IMF’s publicly available macroeconomic and financial datasets; namely the Balance of Payments (BOP), Consumer Price Index (CPI), and the Middle East and Central Asia Regional Economic Outlook (MCDREO) datasets. I used these datasets to compare against the publicly available data from BdL as well as analyze the effects of financial engineering.

Fifth, I extracted data from the Lebanese government’s Central Administration of Statistics publicly available datasets mainly to support previous analysis or compute macroeconomic factors that were not computed by the IMF or the World Bank, especially during the 2019-2020 crisis. I used my fluent knowledge of Arabic to read and interpret this data, considering much of it was only available in one language.

Finally, I extracted 28 data variables from the World Bank’s World Development Indicators dataset ranging from EOY 1996 to 2019; the yearly frequency resulted in 24 entries for each variable. The data consists of macro variables (e.g. BOP related Current and Capital
Accounts) and was used to conduct further analysis of the macroeconomic effects of financial engineering or confirm data from Lebanese sources (BdL, BLOM, Government).

All figures not denoted with a source originate from the constructed datasets described above and created throughout this research project.

**Figure 3: BdL Source Dataset**

<table>
<thead>
<tr>
<th>Period</th>
<th>in billions of LBP</th>
</tr>
</thead>
<tbody>
<tr>
<td>31/03/99</td>
<td>17.4</td>
</tr>
<tr>
<td>30/04/99</td>
<td>17.4</td>
</tr>
<tr>
<td>31/05/99</td>
<td>17.4</td>
</tr>
<tr>
<td>30/06/99</td>
<td>17.4</td>
</tr>
<tr>
<td>31/07/99</td>
<td>17.4</td>
</tr>
</tbody>
</table>
Results

Foreign Currency Assets

The first objective of the financial engineering policy was to build up the foreign currency reserves that BdL has at its disposal. Due to the increased political instability in the region and the central role that foreign remittances and deposits play in the Lebanese economy (Barclay, 2021), BdL’s foreign exchange reserves are a closely followed signal tied to investor trust in the country’s financial system. This gives the central bank an increased incentive to reverse the slow backsliding of foreign reserves to show its commitment to the peg and its ability to defend it. As we can see in figure 4 below, the level of foreign reserves sharply reversed course and began increasing after the implementation of financial engineering in early 2016 and reached an all-time high of 55.4 trillion LBP or 36.8 billion USD in October 2017. This was, however, merely a short-term result as foreign currency levels declined exponentially since then and have reached their lowest nominal levels since 2009 reaching 26.3 trillion LBP as of February 2021.
Commercial Banks’ Capital Reserves

The financial engineering scheme did shore up banks’ capital reserves. However, it is key to understand the currency forces at play in this statement. The primary incentive to participate in the Swap scheme was the 0% discounted interest and commissions offered in LBP equivalent to the amount deposited in USD at BdL in exchange for LBP-denominated claims on BdL in the form of certificates of deposit (CDs). While this capital injection should have increased the monetary base considerably, this was accumulated in LBP CDs at the central bank which often remained unchanged for years since trading in the secondary market is practically non-existent (Gaspar, 2017). The biggest impact of this policy, however, was that around 70% of commercial bank assets represented claims on the public sector (~10%) or government debt (~60%) (figure 5).
This substantially increased the concentration of credit risk and reliance on the Lebanese government to eschew default.

Figure 5: Aggregate Commercial Bank Assets in proportion

Increasing LBP liquidity

The financial engineering scheme sought to apply quantitative easing to expand the monetary base and encourage business activities and investments as well as prevent liquidity shocks of up to 30 days long (IMF, 2017). This led to an increase in the broad money supply until 2018 when it sharply reversed course and was tightened by BdL (figure 6). Since BdL was intervening heavily in the foreign exchange market to support the peg and fund the government’s dollar deficits (IMF, 2019), it was forced to clamp down on LBP liquidity to stifle speculative foreign exchange transactions by investors attempting to take advantage of BdL’s support for the LBP.
Reducing the government cost of borrowing

The Swap operation was meant to reduce the government’s cost of borrowing considering its extremely high debt to GDP ratio, 147% in 2017, which surged to 178% of GDP in 2019. Debt service payments kept climbing and reached 8.2 trillion LBP, which accounts for around 50% of government revenues (IMF, 2019). This was further exacerbated by the currency pressure and black market which makes many of Lebanon’s foreign-denominated Eurobonds much more expensive to pay back. Lebanon’s reclassification from “negative” outlook to “stable” from the three largest rating agencies (Standard and Poor’s (S&P), Moody’s, and Fitch) did not substantially decrease the debt service cost. However, Moody’s downgrade of Lebanon’s debt from Ca to C substantially slashed its ability to borrow even further. While replacing LBP denominated debt with USD denominated debt is normally consistent with lowering the cost of borrowing, especially considering that this borrowing is backed by the peg which is itself backed by large amounts of foreign exchange reserves, this result was not observed in this situation.
Improving BOP status through increased internal demand and productivity

Balance of Payment status did not improve in the long term after the implementation of financial engineering. While in the short term, Net Foreign Assets surged by $4.1B, and the BOP increased from -$1.65B to +$0.37B (Chbeir 2018) as foreign remittances increased in response to the high-interest rates offered on dollar-denominated and newly converted LBP deposits. This inflow was not sustainable as the risks associated with these deposits became more apparent. According to Brite, by BLOMinvest, BOP was at -$1.88B in May 2019 and continued to tumble to -$3.05B in Jul 2020 as capital flight overtook the banking system. In sum, the short-term BOP gains from the financial engineering policy were not sustainable, as investors realized that the economy could not reasonably grow at a fast enough pace to allow BdL to justifiably offer the interest rates that it did.

Inflation Target Below 4%

Controlling the rate of inflation is key to maintaining a healthy economy especially considering government debt cannot be inflated away since a large portion of it is denominated in USD. According to the Lebanese Government's Central Administration of Statistics, cross-referenced with Bloomberg, the inflation rate was the following:

<table>
<thead>
<tr>
<th>Year</th>
<th>Inflation Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2016</td>
<td>-0.82%</td>
</tr>
<tr>
<td>2017</td>
<td>4.48%</td>
</tr>
<tr>
<td>2018</td>
<td>6.07%</td>
</tr>
<tr>
<td>2019</td>
<td>2.90%</td>
</tr>
<tr>
<td>2020</td>
<td>84.9%</td>
</tr>
</tbody>
</table>

This again fits with our previous trends that, while at the outset of the financial engineering scheme, the inflation rate was around the desired rate (4.48% in 2017), it did not hit the target in 2018 and heavily ballooned when the crisis shook the country in 2020. We see
massive increases in the CPI for government-subsidized goods and massive increases for unsubsidized goods as seen in figure 7 below:

Figure 7: Consumer Price Index *Source: Central Administration of Statistics CPI dataset*

Improving debt rating and consensus outlook

Debt ratings and consensus outlook from multinational rating organizations such as Standard and Poor’s (S&P), Moody’s, and Fitch are very important to Lebanon’s economic outlook. The country has a structural current account deficit and thus relies very heavily on investments and remittances from emigrants or families of Lebanese citizens living abroad. A strong rating indicates the international community’s trust in the Lebanese economy and bolsters
remittances and investments. Specifically, many emigrants in the Gulf invested their savings and foreign currency earnings in Lebanon in exchange for high interest rates incomparable to any similar investment around the world. Lebanon’s debt ratings peaked in 2012: Moody’s rated Lebanon as B1/B+ while S&P and Fitch rated Lebanon as B2/B. When the Swap policy was implemented, the ratings for Fitch and S&P held at B3/B- and Moody’s decreased to B3/B-. The onset of the crisis was accompanied by rumors that the government was planning to default on its Eurobond due in March. The ratings from all three organizations tumbled to their lowest possible values: C, SD, and RD respectively for Moody’s, S&P, and Fitch (Trading Economics). Thus, financial engineering did not improve the global big three rating agencies’ evaluation of Lebanon’s ability to pay its debt and thus did not substantially promote a lower cost of borrowing for the country.

There is another metric by which these reporting agencies qualify a country: economic outlook. This metric focuses on a country’s entire economy instead of simply on the quality or risk of its debt. Lebanon’s outlook was lowered to “negative” after the onset of the Syrian crisis in 2012 by all three agencies and was maintained at that level mostly consistently until mid-2016. After the implementation of financial engineering, Fitch, S&P, and Moody’s raised their ratings to “stable” respectively in July 2016, September 2016, and August 2017 (Trading Economics). This was a substantial achievement for the country considering many of the structural issues which led to the negative rating (including spillover effects from instability in the region and the Syrian civil war) had not subsided at that time. These changes can be attributed to the improvement of many financial metrics including the country’s foreign exchange reserves and the level of deposits from emigrants especially in the gulf region which were in response to the Swap policy’s extremely generous interest rates. This development did not last very long, as the negative effects of
financial engineering, namely currency pressure, and credit risk exposure started becoming apparent and led to a reclassification of Lebanon’s outlook back to negative in December 2018 by Moody’s and Fitch, and later in March 2019 by S&P. While the result was ultimately negative, it is extremely important to understand why, for a brief two-year period, the country’s outlook was raised and what elements of the risks that emerged later in 2018 were not apparent in 2016 and 2017 when the outlook was improved. This would be a core insight that would be relevant to future studies of Lebanon, or countries in similar fiscal situations.

Financial Engineering Costs

Even with some of the highest interest rates on term deposits offered around the world, banks increasingly struggled to attract foreign deposits and “fresh money”. Deposit growth, excluding accrued interest, was at 3.4% in 2018 and continued to fall in 2019 to dip slightly below zero (IMF, 2019). This is one of the most important insights that can be easily glazed over while looking at deposits. The interest rates offered on deposits were extremely high. Banks had access to rates of 6.5% on new US dollar deposits and would borrow against it at a rate of 2% to acquire BdL ten-year CDs for rates of around 10.5% and had access to another set of operations that would boost these rates further (BdL). Commercial banks were effectively able to earn 15% on holdings of dollar-denominated assets (Oguri, 2020). BdL had to pay this high effective cost to acquire foreign reserves and strengthen banks’ capital positions. It is pertinent to study how BdL financed the financial engineering program and how it deployed the newly generated dollar funds.

Financial Engineering Proceeds

Conventional wisdom would indicate that if BdL sought to generate returns sizable enough to fund the costs of the Swap policy, it would have to invest in risky assets with high
growth potential that can support effective annual dues of 15%. BdL used much of its dollar reserves to fund growing government USD deficits and defend the dollar peg. While the exact volume and timing of BdL’s intervention in the LBP currency market are not public, we can deduce from figure 9 below that large amounts of capital were deployed at an accelerating rate to satisfy the ever-growing need for dollars.

The two most likely causes of dollar leakage from BdL and the wider financial system were BdL’s involvement in defending the peg and BdL’s funding of government deficits in US dollars. The pressure on the peg was amplified by orders of magnitude due to the Covid-19 pandemic which hit one of Lebanon’s strongest export sectors: tourism. Tourism accounted for 19.1% of GDP in 2018 (IDAL 2018) and was all but wiped away after the civil unrest in late 2019 and the advent of Covid-19 (98% decline in visitor arrivals according to the ministry of tourism).

19 years after the institution of the peg to the USD, the financial engineering policy was implemented on top of an overvalued Lebanese Pound. The Lira was considered to be at least 50% overvalued by the IMF in early 2019 which afforded the Lebanese access to cheap imports but stunted the growth of the manufacturing sector. Trading partners slowly moved away from Lebanese imports in favor of Egyptian, Syrian, and Turkish products and partners, where labor was substantially more affordable. In August 2019, banks started instituting informal capital control regulations that limited the number of dollars that could be transferred out of the country or withdrawn in cash in an attempt to limit an accelerating hemorrhaging of funds. While there was never a formal law passed by the Lebanese parliament to institute capital controls, BdL supported measures that put limits on dollar spending abroad. This resulted in an interesting dynamic where the central bank maintains the peg and funds a 1515 LBP/USD rate, but only for the very limited and ever decreasing allowable transfers. This created two tiers of dollars in the
economy. First, those in cash or fresh money accounts, which holders could freely transfer out of the country or use to pay dollar liabilities. Second, those in banks subject to informal capital control regulations. These dollars, dubbed “Lollars” by Harvard University economic fellow Dan Azzi, could only be used for interbank transfers and payments inside the country. Therefore, there were effectively three different currency exchange rates in the country: bank US Dollars (Lollars), bank Lebanese Pounds, and so-called “fresh funds”.

Figure 8: Evolution of LBP/USD Black Market Exchange rate *Source: Lirarate.org*

BdL Balance Sheet

The Lebanese central bank (BdL) has operated under governor Riad Salameh since 1993; he has been a primary architect of many policies including the USD peg and financial engineering. Beyond the stated effects of financial engineering, which were discussed above, the policy had transformative effects on the central bank balance sheet in a short period.
When financial engineering was adopted, BdL adopted a policy of capitalizing future profits from the Swap and related operations onto the balance sheet. This accounting method is already used by some central banks worldwide to record future profits on the issuance of currency as an asset - seigniorage. BdL capitalization of financial engineering operations appears in “Other Assets”, which is an opaque accounting measure that some experts and critics suspect holds the key to understanding the exact effects of the Swap policy.

Other Assets’ composition remains a private matter in Lebanon’s central bank. While it is not uncommon for central banks and financial institutions to fold miscellaneous or inconsequential items into an “other assets” category, BdL’s version is the largest item on the balance sheet as the publication of this paper (figure 9). Other Assets grew exponentially from late 2017 following a similarly large decline in foreign currency reserves. The size and velocity of Other Assets’ growth imply strictly that it was funded by the decline in reserves. This would not necessarily be indicative of bad accounting practices had there been reasonable expectations that the central bank was generating profits from financial engineering operations. The previous exploration of financial engineering objectives indicates that the policy can be considered a failure in the medium and long-term and as having failed at what it set out to do. Therefore, it is reasonable to believe that such large capitalizations of future expected profits are implausibly optimistic and should be adjusted accordingly. Since, as of the publication of this paper, there has been no successful and independent forensic audit of the central bank balance sheet and operations, there is no way to confirm the proportion of Other Assets that is impaired. There are many estimates that a vast majority of the LBP 67 trillion (valued at 1507 LBP/USD) of Other Assets (as of February 2021) is not salvageable.
The intentionally opaque nature of the Other Assets entry and details of the BdL balance sheet make it difficult to unwind the exact sources of the largest entry on the central bank balance sheet. (Khalil, 2020) discusses the four most likely operations affecting Other Assets. While we cannot directly observe their effects, the changes to other entries in the BdL balance sheet or aggregate banking sector balance sheet hint at these four theories:

- BdL could have issued new currency (LBP liabilities) in excess of that used to buy T-bills to cover additional expenses to depositors. Since assets held by BdL do not return the hurdle rate it offered on deposits acquired during or before the Swap policy, it had to record future profit as assets to avoid marking down its equity.
- BdL could have covered some of the government’s LBP deficits through increasing “public sector deposits” and recorded future expected dues from the government as Other Assets. BdL does this instead of recording loans to the private sector. One reason for this is that, while BdL legally must transfer between 50 and 80% of its profits to the government, both it and the government are generating losses and thus BdL avoids marking down its equity by printing LBP on paper to the federal government in excess for future dues stashed in Other Assets.
- BdL could have covered the government’s unmet dollar deposits when the latter could not issue more Eurobonds. The government would have exchanged borrowed LBP for cash USD. This transaction would have decreased foreign reserves on the asset side and LBP currency on the liabilities side. To avoid shrinking the monetary base, BdL would have recorded an increase in Other Assets to keep the monetary base at higher levels. Effectively, this funds the government’s deficits with little transparency or accountability.
• BdL debited Other Assets to fund the exorbitant interest rates paid to dollar
depositors in excess of the return on its own assets. BdL did not invest its foreign
reserves into investments that yield above those offered to USD depositors and
commercial banks who brought in “fresh dollars”. Instead of reflecting this change
by decreasing equity, BdL would have increased Other Assets to balance its books
without showing a loss.

The likeliest scenario is that all four of these developments occurred in tandem, in addition
to other miscellaneous operations (Khalil, 2020). What they all have in common is that they
reflect an unwillingness of BdL to be transparent in its losses. Instead, it opted to inflate its
balance sheet with a near-fictional asset that must, by all expert accounts, be written down.

In essence, it appears that instead of recording losses on its equity/capital account, BdL
artificially inflated its balance sheet through the creation of Other Assets and more deposits or
LBP currency on the liabilities side. This is supported by figures 10 and 11, as the “deposits”
entry constitutes the only balance sheet liability large enough and growing fast enough to
represent the credit generated by debiting Other Assets to the Balance Sheet. If true, this
necessarily implies that BdL has a negative net worth of around -$30 billion which it cannot fund
by simply issuing LBP because its liabilities consist mainly of USD. This, of course, can only be
verified through a full forensic audit of BdL and an accurate breakdown of Other Assets.

If the central bank cannot pay its USD liabilities without undertaking a massive
hyperinflationary plunge, this has many implications for the country’s economy as well as the
financial sector, commercial banks, and depositors.

Figure 9: Evolution of BdL Assets by proportion
Figure 10: Evolution of BdL Liabilities
Figure 11: Evolution of BdL Liabilities by proportion

Figure 12: Share of Deposits at BdL by source

Figure 13: Evolution of Deposits at BdL over time
Commercial (Private) Banks Aggregate Balance Sheet

The commercial banking system in Lebanon constitutes the majority of the financial system. It is the only sector in the country that exhibits institutional level complexity seen sparsely elsewhere. Commercial banks in Lebanon represented 6 of 11 public equities listed on the Beirut Stock Exchange and 76% of the market cap before the crisis (World Bank 2013). Also, as seen in figure 12, commercial banks contribute 97% of deposits at BdL, themself constituting up to 80% of BdL’s balance sheet at the height of financial engineering. Concurrently, the share of commercial bank assets deposited at the central bank has been growing substantially. In 2009, deposits at BdL became the largest asset held by banks in aggregate (figure 16) and reached 60% of commercial banks’ asset capitalization at the height of the crisis in 2019-2020. These are direct effects of BdL policies of offering beyond-competitive rates on deposits before financial engineering as well as the sky-high rates offered during Swap.

The effect of these policies is clear: the private financial sector became deeply linked with BdL and relied on it to stay afloat. This entanglement meant that any threat to the treasury or
BdL’s financial solvency would have serious implications for the financial system and the economy as a whole.

Figure 14: Consolidated Commercial Bank Assets

Figure 15: Consolidated Commercial Bank Liabilities
Figure 16: Consolidated Commercial Bank Assets in Proportion
Discussion

The data analysis suggests that while in the short term, certain goals of financial engineering were met, it was not a sustainable long-term policy in the Lebanese environment of increasing current account deficits, lackluster GDP growth, and currency peg to the US dollar at the 1507 rate. Exploring the incentives behind the Swap policy is important. Was the financial engineering policy a promising solution to Lebanon’s decline that was disrupted by political instability? Was it a failed policy that only acted as a band-aid, temporarily reversing an otherwise irreversible decline? Or was it a policy designed intentionally to give the illusion of better fiscal status without creating any value?

The financial engineering policy effectively caused the intermingling of depositors, commercial banks, and the central banks such that dollar leakage from BdL caused the toppling and insolvency of the entire financial system. It is only by examining the banking sector that we infer a motive for BdL to conceal its losses as Other Assets- to avoid a runaway cycle of bank runs and financial collapse as depositors realize that commercial banks cannot return their dollar deposits. This allows us to answer the final question posed at the outset of this thesis: why did rating agencies (as well as depositors and consumers) overlook the losses generated by financial engineering until much after its implementation? BdL, by essentially capitalizing fictitious assets instead of reducing equity, obscured losses through Other Assets temporarily, until rating agencies and people started seriously doubting its status as an asset. This, among other factors including heightened political instability and macroeconomic pressure, was the eventual cause of the 2019-2020 Lebanese financial crisis.
When financial engineering was launched, it was pitched as a long-term solution to Lebanon’s financial woes (as described above by BdL’s governor, a win-win situation). However, at the height of the program, Riad Salameh conceded that financial engineering was meant to keep the economy afloat until macroeconomic conditions improve or Lebanon receives another bailout from European or Gulf countries (Oguri, 2020). “If the Syrian war ends, then we have major sectors that can drive the economy forward.” - Riad Salameh. It is extremely pertinent to study which alternate courses of action could have prevented this crisis. One such alternative could have materialized if BdL had used proceeds from the Swap policy in fx reserves to rehabilitate the national export sector and industry in general while unwinding the USD peg to make Lebanese goods and services cheaper and more competitive. If the peg was destined to crumble, would it have been beneficial to ease into this reality while building a competitive industrial export sector? If Lebanon was destined to default on its Eurobonds and USD liabilities, should it have followed the Argentinian precedent and converted USD liabilities to LBP at the expense of bank shareholders? If the volume of dollar leakage was public and apparent early on, would citizens have successfully pushed for an early capital control law? If BdL did not capitalize its losses as “Other Assets”, would commercial banks have written off their equity losses and turned the largest depositors into shareholders?

These questions are all pertinent to examine in the interest of finding actionable solutions to the Lebanese crisis, arming policymakers with the tools to prevent future crises around the world, and empowering investors to understand political and economic risks associated with investing in emerging economy bonds and securities.
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