

# **The Balance Sheet Approach and the Public Debt Stock Analysis: the Case of Lebanon**

Souaid, Sana

*Banque du Liban, Statistics and Economic Research Department*

*Masraf Loubnan Street*

*Beirut, P.O.Box 11-5544, Lebanon*

*E-mail: sjad@bdl.gov.lb*

## **Abstract**

*This paper examines the usefulness of the public sector balance sheet approach (assets and liabilities) in assessing the recent development of Lebanon's financial vulnerabilities in the public sector.*

*Because of the limitations with the currently available data for the public sector balance sheet in Lebanon, the approach that has been chosen in this paper is inspired from the new BSA and limited to the assessment of the public sector vulnerabilities through the analysis of the main stock variable in the public sector balance sheet: public debt stock.*

*Only data related to the government's liabilities balance sheet (on the debt stock) was available by maturity, sector and currency. For this reason, this paper focuses, in its first part, on the debt stock in Lebanon and its evolution during the last decade. In its second part, this paper attempts to explain the evolution of the Lebanese domestic debt through a new perception based on the impact of business sentiment on the domestic public debt.*

## **Keywords**

Stocks, liabilities, assets, balance sheet, maturity risk, currency risk, debt stock, business sentiment, coincident indicator, domestic debt.

## **INTRODUCTION**

Recent financial crises in emerging countries known by "the third generation of crisis models" have triggered the Balance sheet approach (BSA) over the last decade.

After the Asian turmoil in 1997-1998, economists reviewed the causes, origin and resolution of currency and financial crisis through the new balance sheet analysis. They found that the majority of currency, debt, and banking crises have been occurring at the same time and/or in rapid sequence.

Moreover, international capital and domestic financial markets have become more integrated as well as the linkages between the corporate, banking and public sectors during economic pressures. (This is what happened in the recent financial crisis in the U.S).

The aim of the BSA was to provide a clear assessment of currency and maturity mismatches in the different sectors in an economy as well as identifying the spillover effect transmitted through sectoral and aggregate balance sheets.

In this context, the IMF recent works have been using balance sheet related concepts which included the IMF's framework for debt sustainability analysis (DSA) and the Financial Sector Assessment program (FSAP). Other important works have focused on the adequacy of official reserves in relation to short term debt, monetary aggregates and other stock variables and enhancing efforts at promoting public debt management.

Over the past few years, some emerging countries, such as Bulgaria, Colombia, Latvia, Peru, Thailand, Turkey and Lebanon have tried to apply the BSA by improving the availability and accuracy of some key balance sheet stock data in order to follow international requirements in this field.

However, many obstacles emerged while applying this new approach. In order to make the balance sheet approach operational, reliable data on the assets and liabilities of each sector in the economy is

essential. Moreover, it requires detailed information on the size, maturity and currency composition of the assets and liabilities between sectors. Even in the most developed countries, the national balance sheet is not always complete.

While the BSA is only fully exploited if cross-sectoral linkages are covered, examining individual sectoral balance sheet may also be valuable and useful to detect weaknesses that have potential to spill over into other sectors.

In Lebanon, for instance, the main vulnerability of the economy is due to the high level of public debt and the mutual exposure between the government and the banking system<sup>1</sup>. Given this fact, it would be interesting to focus on the public sector mismatches that could affect the whole economy.

Because of the limitations with currently available data for the public sector balance sheet in Lebanon, the approach that has been chosen in this paper is only inspired from the new BSA and limited to the assessment of the public sector vulnerabilities through the analysis of the main stock variables in the public sector balance sheet.

In the first section, this study will focus on the government balance sheet in Lebanon by monitoring the evolution of its main element of liabilities i.e debt stock over the last ten years.

In the second section, this paper attempts to explain the evolution of Lebanese domestic debt through a new perspective based on the impact of business sentiment on the domestic public debt. This new approach could be a helpful tool to take into consideration when assessing the debt problem.

## **I-Evolution of the outstanding debt stock by maturity, sector and currency: 2000-2010**

### **I.1.GFSM 2001 Implementation Plan in Lebanon**

The IMF's Government Finance Statistics Manual 2001, supports the Balance sheet approach through a statistical framework that systematically links flows and stocks and introduces the concept of a Government Balance sheet.

Lebanon has started reclassifying its government finance statistics according to GFSM 2001 few years ago. However, many obstacles occurred preventing the migration from GSF 1986 to the new GFS 2001.

Concerning statistics flow, traditionally, the Lebanese government has kept its accounts on a modified cash basis in relation to the payment orders issued while the new GFS 2001 focuses on the accrual basis.

As to the stock statistics, one of the main constraints was the reevaluation of fixed assets. It may be difficult to attach market values to some nonfinancial government assets, and usually analysis focus only on the financial assets of the general government sector rather than its total assets. The fixed assets are evaluated at purchase costs, and the liabilities at face value.

Therefore, like many countries, the core requirement for Lebanon in this field are: the establishment of an accrual basis of recording; the valuation of assets and liabilities; and the reclassification of all the GFSM 1986 classification categories to the new GFSM 2001 classification categories.

Although Lebanon has implemented a pilot test in this field with the assistance of IMF and other international organizations, a full implementation of GFS 2001 is not an easy task because it will require changes in the way Lebanon collects and compiles its statistics and will also need politicized decisions of such corresponding legislation.

Therefore, while Lebanon is striving to improve data on government assets and liabilities according to the new system, it is still functioning through the methodology employed in the 1986 GFSM which includes stocks of debt liabilities only.

In general, governments need to contain their own balance sheet vulnerabilities by keeping debt at low levels, bolstering more insurance against shocks into their debt structure and maintaining adequate reserves

---

<sup>1</sup> IMF Country Report No.06/100, June 2006.

levels. Thus, government’s liabilities would ideally be denominated mainly in domestic currency and issued at long maturities to avoid both maturity and currency risks in the public sector.

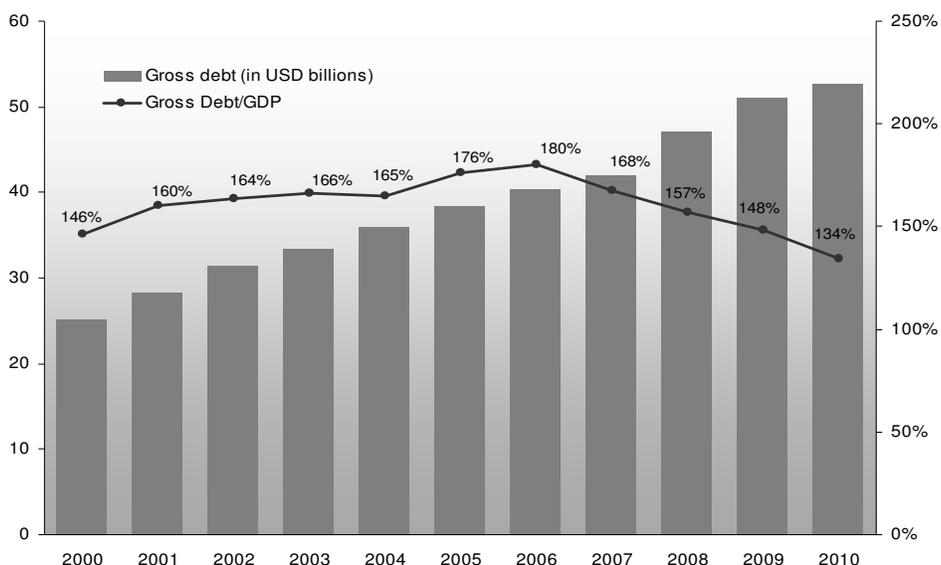
What would be the case of the Lebanese public sector balance sheet during the last decade? By monitoring the public debt and some other stocks variables such as gross reserves and government deposits during the last decade, we can assess the government’s strategies against public balance sheet shocks and mismatches.

**I.2.Evolution of total gross and net debt**

Lebanon’s relatively strong economic performance through the 2000’s masked an accumulation of balance sheet weaknesses in the Government sector with an average gross debt at about 160% of GDP, one of the world’s highest ratio.

Both gross debt and total net debt to GDP ratios have been on a steady decline since their peaks in 2006 attaining respectively 134% and 115% as of end-2010, their lowest rate during the last decade (Figure 1). This downward path is due mainly to sustained economic growth with a real GDP growth estimated at 8.1% in 2009 and 6.3% in 2010. Government fiscal policy and overall positive environment have also contributed to primary surpluses of 3.1% and 1.2% to GDP respectively at end-2009 and 2010.

**Figure 1: Gross Debt to GDP Evolution (2000-2010)**

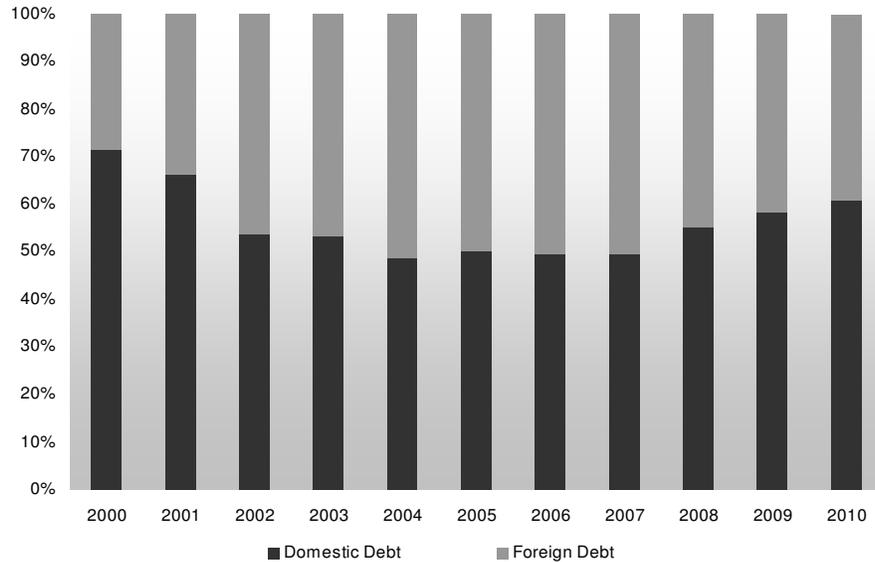


Source: Lebanese National Accounts, Banque du Liban, Financial Operations Department

**I.3.Composition of debt by currency**

Figure 2 shows how the share of domestic currency debt over the period 2005-2007 was stable at 50% and increased in 2007 to reach 60.9% at end of 2010. This was accompanied by an increased liquidity in domestic currency, de-dollarization of deposits leading to a greater demand for treasury bills and bonds. On the other hide, the foreign currency debt decreased from 50.5% at end-2007 to 39.1% at end-2010 due to the current de-dollarization trends, high level of foreign reserves and the absence of new parliamentary authorizations for foreign currency borrowing. This recent decline in foreign currency debt reflects a decline in the foreign currency risk on the debt portfolio over the past few years.

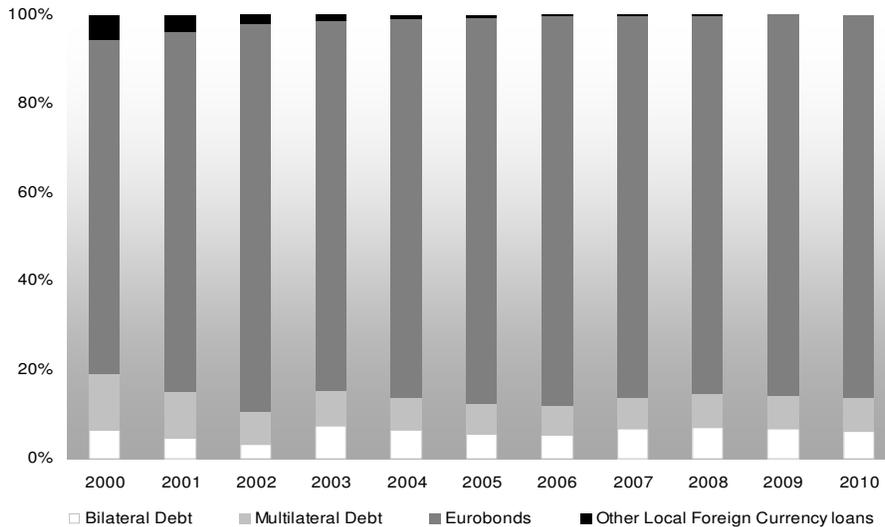
**Figure 2: Domestic Debt v/s Foreign Debt (2000-2010)**



Source: Banque du Liban, Financial Operations Department

Moreover, in terms of foreign debt, the reliance of the Lebanese authority on external loans is less pronounced, although the size of external debt has risen in the subsequent years given the need to finance reconstruction and development plans after the war of July 2006. On average 68% of foreign currency debt is composed mainly by market-issued Eurobonds detained by domestic creditors for almost 80% of total bonds.

**Figure 3: Foreign Debt Composition (2000-2010)**



Source: Banque du Liban, Financial Operations Department

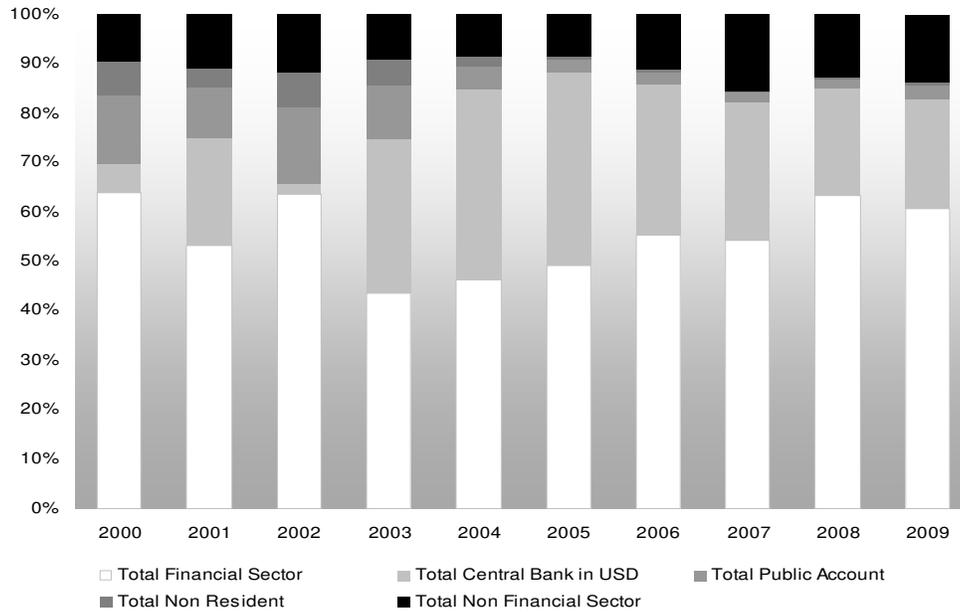
Prior to this period (before 2005), the domestic share in local currency was constantly declining from 71.5% in December 2000 to 48.8% in December 2004, foreign debt reaching a peak of 51.2% at end-2004. This was the result of the debt restructuring and reduction in interest rates after Paris II International Donor Conference to Lebanon in 2002.

**I.4. Composition of the domestic currency debt and holders**

In Lebanon, total domestic financing channels are mainly by Treasury bills issuances (the share of TBs exceeds 90% of the total local debt). As end-2010, commercial banks were dominant subscribers of treasury bills by holding 56.6% of subscriptions, followed by the central bank by 27.2% and and the public institutions by only 16.1% of the total treasury bills.

Figure 4 shows the evolution of Lebanese debt holders over the last decade: Banks have become significant holders of sovereign’s domestic debt; the share of debt held by the Central bank has been steadily increasing since 2002 as it rose from 2.9% in 2002 to 33.3% in 2003.

**Figure 4: Distribution of Treasury Bills Among Holders (2000-2009)**

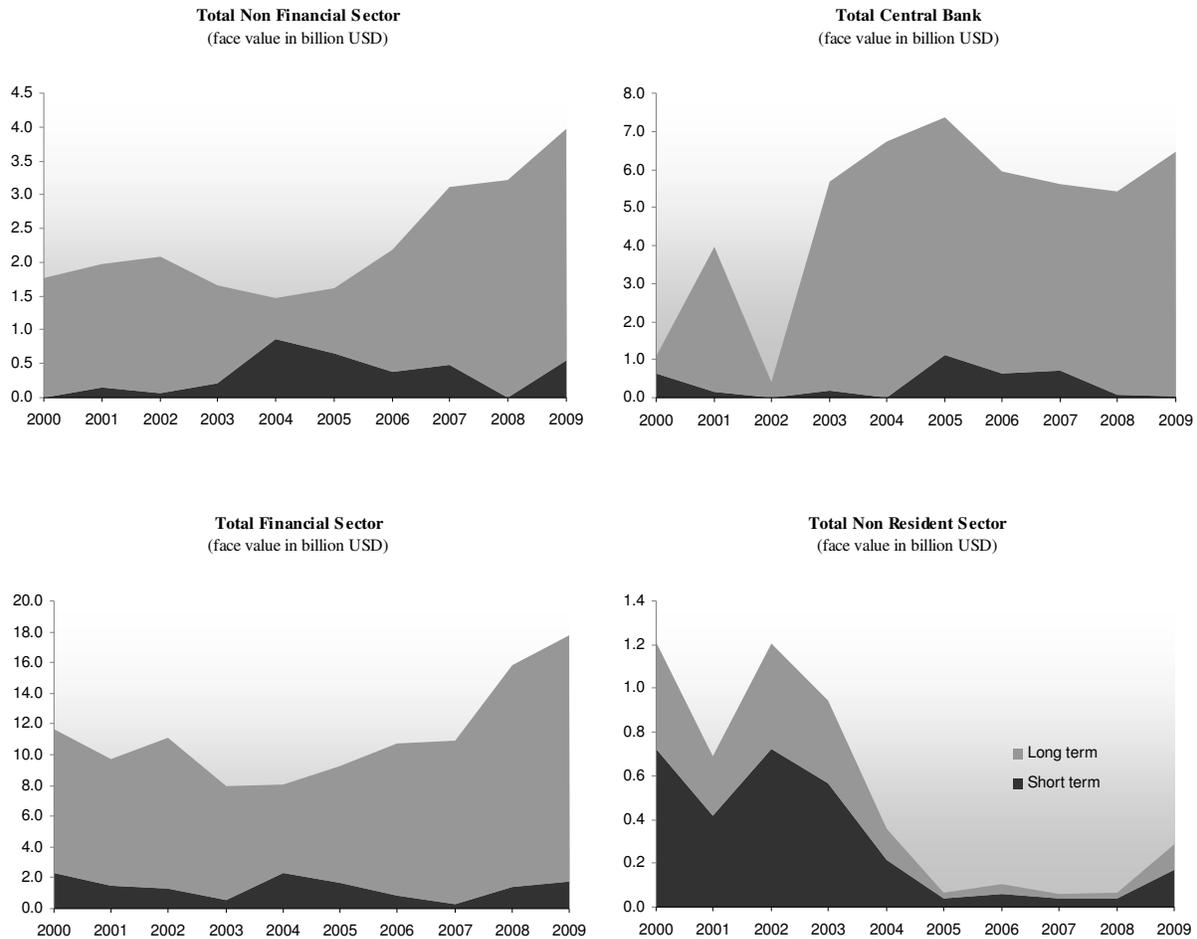


Source: Banque du Liban, Financial Operations Department

Moreover, Bank’s claims on the public sector are about 28% of their total assets. Thus, depositor’s confidence in the viability of bank’s balance sheets as well as their confidence in the performance and sustainability of public debt are highly interdependent.

Based on the national Balance sheet analysis, this growing inter linkage between public, financial and non-financial (corporate and household) sectors over the past decade could lead to sectoral balance sheet mismatches, financial vulnerabilities and balance of payment crises. Building and strengthening confidence in the Lebanese economy would be the major issue against internal and external vulnerabilities. This point of view will be developed in the second part of the paper.

**Figure 5: Distribution of Treasury Bills Among Holders by Maturity (2000-2009)**



Source: Banque du Liban, Financial Operations Department

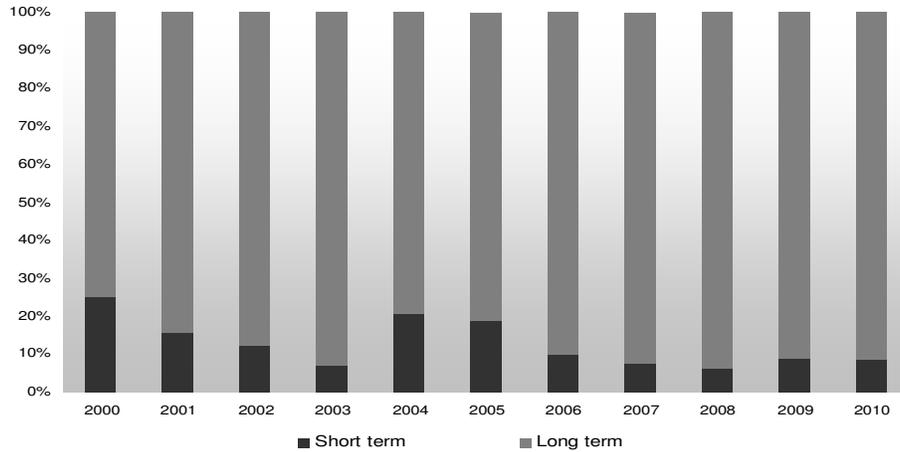
### I.5. Maturity Structure of Government Debt

The high dependence on the domestic banking system implies that rollover risk is linked to the stability of bank's deposits as well as the maturity structure of the sovereign bonds. Funding longer-term government paper with short-term banks deposits could create maturity mismatches. Indeed, in Lebanon the maturity mismatch risk associated with the portfolios of bank loans granted to the public sector which represents an important part of bank's uses of funds has risen over the last few years given the relatively short term nature of bank deposits and the increasing share of long term domestic debt.

In terms of maturity, about 90% of local debt has a residual maturity of over one year and, as well as all bonds, denominated in foreign currencies. The share of short term debt in total government debt has declined and interest cost lowered over the last decade, this has reduced the government's exposure to interest rate risk.

Figure 6 shows how the share of short-term government bonds declined from 25 % to 9% out of the total local debt between 2000 and 2010 while long term debt have improved over the same period.

**Figure 6: Outstanding local Debt Structure by Maturity (2000-2010)**



Source: Banque du Liban, Financial Operations Department

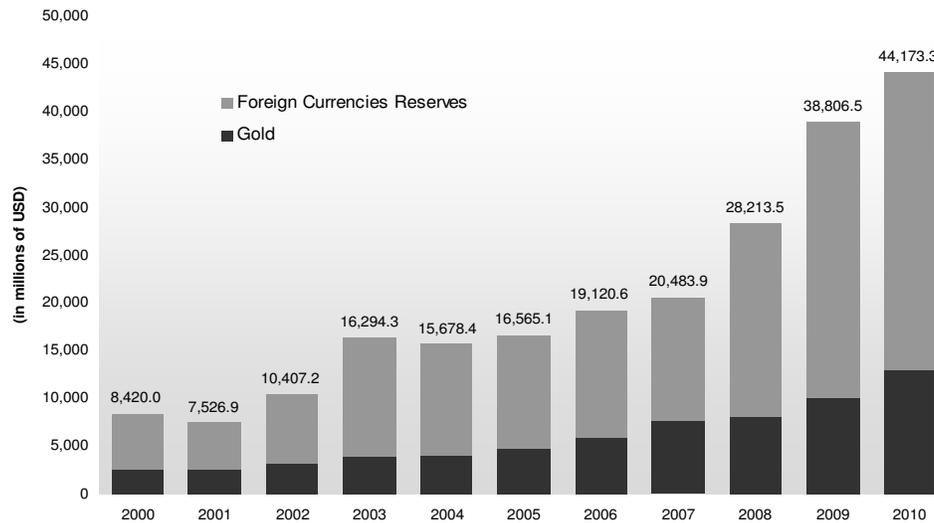
The weakening of the liability side of the public sector’s balance sheet had not been matched by adequate improvements on the asset side mainly because of a lack in fiscal adjustment policies.

However, against the high levels of debt, a number of specific buffers have reduced Lebanese government’s vulnerabilities and mismatches in the public sector.

In this regard, the BDL has contributed to a stronger position by accumulating reserves over the last years. Gross foreign reserves (excluding gold) sharply rose from USD 5.895 million at end-2000 to USD 31.163 million at end-2010. Over the considered period, the BDL has managed to more than quadruple its foreign currency reserves by accumulating international reserves at a fast pace. The annual growth of these reserves reached 8.4% end-2010 (figure 7). High capital inflows and ongoing de-dollarization have enabled the BDL to accumulate international reserves at this rapid rate.

In July 2010, the Executive board of the IMF agreed that Lebanon’s vulnerabilities and exposure to shocks require a strong international reserve position and welcomed the buildup of reserves that took place over the past few years.

**Figure 7: Total Foreign Assets (2000-2010)**



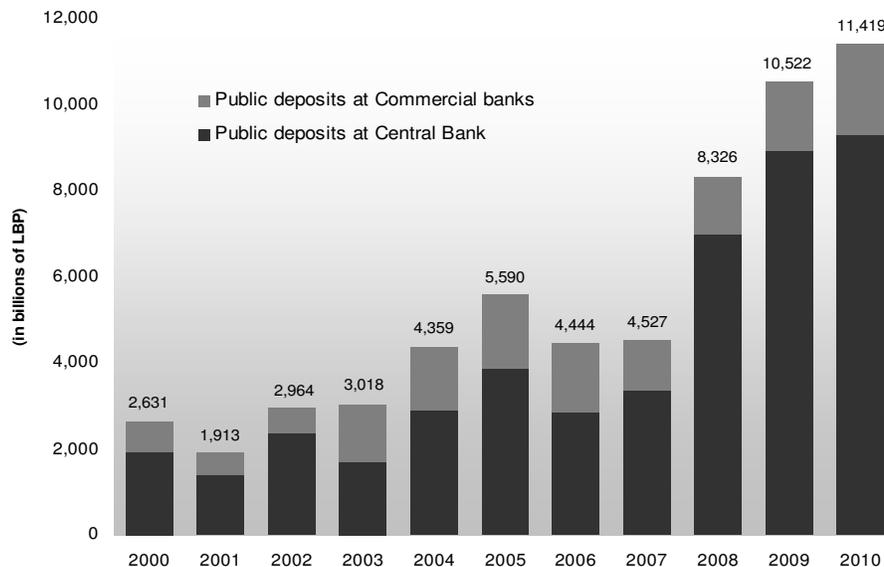
Source: Banque du Liban, Statistics and Economic Research Department

In addition, one of the main financial assets of the government is total public deposits at BDL and commercial banks.

By monitoring their evolution over the last ten years, we can highlight a significant increase in the total public sector deposits over the last three years; they grew from LBP 4.527 billion at end-2007 to LBP 11.419 billion at end 2010.

Since 2007, government deposits at the BDL went up from LBP 3.364 billion to LBP 9.312 billion at end-2010. The evolution in public deposits was less pronounced at the commercial banks, in 2010 they stood at LBP 2.107 billion (figure 8).

**Figure 8: Total Public Sector Deposits (2000-2010)**



Source: Banque du Liban, Financial Operations and Statistics and Economic Research Departments

These preventive measures which led to increasing public assets have served as indirect buffers against public sector risks and vulnerabilities. In line with these limited and reticent measures and regarding the high interdependency between public, financial and non-financial sectors, confidence and business sentiment could play a major role in reducing public debt, especially if it's mainly financed by bonds as in Lebanon.

## II - Impact of Business sentiment on the domestic public debt

Shifting business and investor sentiment is often ignored in the justification of government domestic debt. According to Barro and Gordon (1983), if public debt is financed by government bonds, a shift in market sentiment can push an economy to a bad equilibrium. This happens because the costs of honoring public debt or maintaining a fixed exchange rate regime depend on private agents' expectations about future fiscal and monetary policy.

What is worrying from the perspective of central banks and governments in the emerging market economies such as Lebanon is that any political or security breakdown can be the reason behind a change in private agents' expectations and sentiment.

In the same line, Baker and Wungler (2005) suggest that high sentiment due to high growth firms is expected to be related to high investor demand for speculative stocks relative to investor demand for stable, mature government bonds (safe assets).

Recent research relies on market-base indicator as proxy for investment sentiment, while survey-based

indicators can capture the mood of the market more directly<sup>2</sup>. In general, survey-based measures facilitate a better understanding of the formation of investor sentiment and its influence on the behavior of stock and bonds markets.

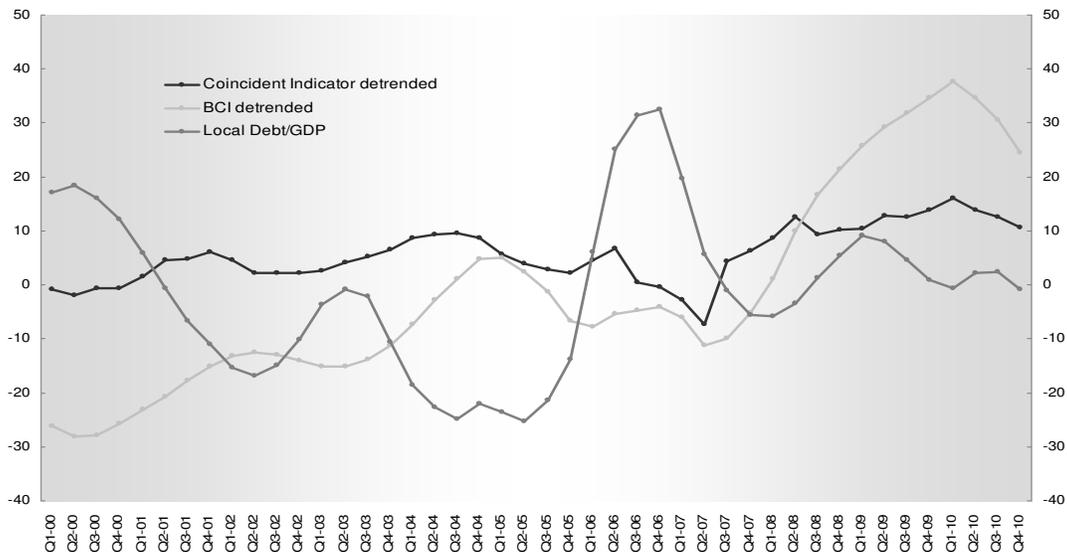
This paper relies on the Business Composite Indicator, extracted from the business survey conducted by the BDL, as proxy for investor and business sentiment in the Lebanese market<sup>3</sup>. This indicator<sup>4</sup> is interpreted as a measurement for the global conjunctural climate as seen by surveyed managers. The BCI can be considered as the best significant tool for tracking economic changes. It combines the relevant coincident indicators in each economic sector<sup>5</sup> reflecting consequently the business climate and sentiment as a whole.

Besides this qualitative indicator, we will use the coincident indicator as a monthly proxy of the GDP to compare both the evolution of business sentiment and economic growth with the evolution of Lebanese domestic debt financed mainly by sovereign bonds (excluding the TB's held by the BDL).

Figure 9 shows the year-on-year growth of the domestic debt/GDP ratio and the coincident indicator with the BCI in deviation from its sample mean (0) for the Lebanese economy; data are quarterly, detecting the different phases and turning points of the Lebanese business cycles over the period 2000-2010.

Period of optimism, high business sentiment and growth can be identified as those which the deviation from its sample mean is positive while period of pessimism and recessions are those in the lower segment of the figure (with negative values).

**Figure 9: Business Sentiment v/s Domestic Debt (2000-2010)**



Reference series: quantitative CI de-trended (year-on-year % changes)

BCI: Balance of Opinion seasonally adjusted and centered

Local debt/GDP: de-trended, year-on-year % change.

Source: Own calculations, Banque du Liban, Financial Operations and Statistics and Economic Research Departments

<sup>2</sup> See “Investor sentiment and covariance relationship between government and bonds and the cross-section of stock returns”, Bram van Oirsouw.

<sup>3</sup> See “The Use of Surveys to Measure Sentiment and Expected Behavior of Key Sectors in the Financial System and the Economy: Evidence from the Business Survey Conducted by the Central Bank of Lebanon”, Souaid S., Irving Fisher Committee Working Paper, August 2010.

<sup>4</sup> It's the arithmetic average of the answers (Balance of opinion) to the questions on current Production, Sales, General activity and Construction.

<sup>5</sup> Industry, Trade and Construction.

There is a negative correlation between domestic debt/GDP ratio and the level of optimism and economic growth. This implies that during phases of optimism and economic expansion the domestic debt/GDP ratio decreases, and increases during phases of pessimisms and recessions. When agents are pessimistic, the government issues more domestic debt to finance its expenditure, in order to induce agents to revise their expectations upwards. Furthermore, in period of high business sentiment and growth, investment increases while the interest rates on deposits and bonds tend to decrease leading to less demand on the treasury bills and domestic debt.

The sharp decline in the domestic debt/GDP ratio between Q1-2001 and Q1-2005, is due to many factors: in 2002, Paris II Conference allowed a strong mobilization of the International Community to restructure the Lebanese debt. This contributed to a revival of the economy reaching its edge in Q3-2004, increasing optimism in the business field as well as decreasing domestic debt/GDP. The inflows from regional investors after events of 11 September have also played a role in reducing this ratio.

Political and security incidents since the assassination of the prime minister Rafic Hariri in February 2005 and the July 2006 war had serious repercussions on public finances, and a sharp recession hindered economy between mid-2006 and 2007 resulting to a dramatic deterioration in business along a negative growth rate. During this severe recession, the growth of the domestic debt/GDP ratio reached an inescapable soaring level of 32.4%.

However, the negative correlation between the BCI and the Domestic debt/ratio is not verified starting 2007, their fluctuations are almost in the same direction, especially between 2007 and 2008 due to the great political confusion and disorder that paralyzed public institutions over a period of one year and a half.

After mid-2008, the Paris III agreement<sup>6</sup>, as well as the presidential election in June 2008, revived confidence which was translated into an economic boost in business and a noticeable decrease of the domestic debt/GDP ratio. Other important factors also contributed to reduce this ratio such as the strong liquidity ratios in the Lebanese banks over the past three years, leading to more credits accorded to productive sectors and housing loans.

Based on this negative correlation found between business sentiment and domestic Lebanese debt/GDP, we can conclude that the government can influence agent's belief and sentiment by setting, for instance, low taxes and increasing public spending in period of pessimism and vice versa in period of optimism<sup>7</sup>.

## CONCLUSION

This paper was a tentative assessment of the public sector's vulnerabilities inspired by the new Balance sheet approach. The main finding of this study is that from a BSA perspective, the high public debt stock in Lebanon is manageable, since the levels of currency and maturity mismatches have improved over the last decade. This is mainly due to the lengthening of the average maturity of the public debt, and the recent and fast growth of the official reserves at the BDL. However, incomplete data and the static nature of the BSA approach (based on stock variables) may create misleading perceptions about overall risks.

Moreover, given the high interdependency between public, financial and non-financial sectors balance sheets, domestic agent's confidence may play a major role in reducing public debt. In this regard, the second part of this paper highlighted how local debt in Lebanon can be affected by market stability conditions: economic growth and business sentiment could influence the fluctuation of total domestic debt. The negative relationship between the Business Composite Indicator and the domestic debt/GDP can help shed some light into the debate about which fiscal policy to apply during period of recession and pessimism: higher business sentiment and growth are usually associated to lower domestic debt.

---

<sup>6</sup> A third international donor conference--Paris III--took place in January 2007. Beirut's European, U.S., and Arab Gulf allies pledged a total of about \$7.6 billion to help Lebanon recover from the 2006 war and support the economic reform process.

<sup>7</sup> See "Tax smoothing, learning and debt volatility", Francesco Caprioli, 2008.

Finally some recommendations on statistical gaps should be raised in order to fully implement the BSA, to extract both currency and maturity mismatches not only in the public sector but at a national level:

- Implementing standardized Report Forms that provide most of the required data for the balance sheet approach matrices: data on different sectoral balance sheets including a breakdown of all assets and liabilities by maturity and by currency;
- Developing the sectoral balance sheets for non-financial corporations and households where the lack of quantitative data is the main obstacle to implementing the national balance sheet;
- Taking into consideration contingent liabilities and off balance sheet operations;
- Applying the new GSF 2001 in order to meet international accounting standards.

## DEFINITIONS AND CONCEPTS

- **Public sector balance sheet:** includes central government balance sheet and BDL balance sheet.
- **Domestic debt:** include Tb's in Lebanese pound (LBP) held by the domestic banking system and the non-banking one (excluding TB's held by the Central Bank).
- **Maturity mismatches:** short term domestic currency denominated government debts vs. liquid domestic assets of the government.
- **Currency mismatches:** government debt denominated in foreign currency vs. government hard currency assets (reserves).
- **Business Composite Indicator:** is extracted from the Business survey conducted by the BDL, it's the arithmetic average of the answers (Balance of opinion) to the questions on current Production, Sales, General activity and Construction consecutively in the Industry, Trade and Construction sectors.
- **Coincident Indicator:** is a monthly approximation to the GDP adopted by the BDL since 1994. It is composed of eight economic variables that reflect the Lebanese economic activity: oil derivative imports, electricity production, cement deliveries, cleared checks, money Stocks (M3), passenger flows and foreign trade (Imports, Exports). The CI is computed from the total of these quantitative variables, as weighed according to their importance in the GDP and has consequently a similar performance to the economic activity.

## ABBREVIATIONS

- **BSA:** Balance Sheet Approach
- **IMF:** International Monetary Fund
- **GFS:** Government Finance Statistics
- **GFSM:** Government Finance Statistics Manuel
- **CI:** Coincident Indicator
- **BCI:** Business Composite Indicator
- **GDP:** Gross Domestic Product
- **BDL:** Banque du Liban

## REFERENCES

- "Debt-Related Vulnerabilities and Financial Crises: an application of the Balance Sheet Approach to Emerging Market Countries", Rosenberg C., House B., Keller C., Nysted J., Pitt A. and Setser B., occasional paper 240, IMF Washington DC 2005.
- "Lebanon's Debt Management Framework for 2010-2015", Ministry of Finance, Republic of Lebanon, March 2010.
- "Lebanon: Selected Issues", IMF Country Reports No 06/200, 2006.
- "A Balance Sheet Approach to financial Crisis", Allen M., Rosenberg C., Keller C., Setser B and Roubini N., WP/02/2010.
- "Developing the Public Sector Balance Sheet", Holder A., Economic Trends, No. 540 November 1998.

- "Smoothing, Learning and Debt Volatility", Caprioli F., Job Market Paper, 31 October 2008.
- "Investor sentiment and the covariance relationship between government bonds and the cross-section of stock returns", Van Oisrouw B., University of Maastricht, the Netherlands.
- "The Use of Surveys to Measure Sentiment and Expected Behavior of Key Sectors in the Financial System and the Economy: Evidence from the Business Survey Conducted by the Central Bank of Lebanon", Souaid S., Irving Fisher Committee Working Paper, August 2010.
- "Macroeconomic Statistics and the Recent Financial Crisis", Statistics Department, IMF, 14 September 2010.
- "Debt-and Reserve-Related Indicators of external Vulnerability", Policy Development and Review Department, March 23, 2000.
- "Lebanon: Report on Performance Under the Program Supported by Emergency Post- Conflict Assisitance", IMF Country Report No.09/313.
- "High public debt, multiple equilibria and inflation targeting in Turkey", Fatih Ozatay, BIS paper No.23.