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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

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Abstract

Regarding the new statistics needs, several central banks focused on collecting a variety of data and indicators about market developments based on surveys, in parallel with the conventional statistics. After presenting the methodological approach of the Business Survey conducted by the Central Bank of Lebanon, this paper will examine how the Business Indicators obtained from this opinion-based survey could be a useful tool for policymakers in conjunctural analysis and short-term forecasting.

Keywords Business Survey, Business Cycle, Business indicators, Coincident Indicators, Leading Indicators, Lagging Indicators, Qualitative Data, Conjunctural Analysis

LIST OF ABBREVIATIONS

BCI Business Composite Indicator

BDL Banque du Liban

BI Business Indicator

BO Balance of Opinion

BS Business Survey

CCI Confidence Composite Indicator

CI Coincident Indicator

CPI Consumer Price Index

EU European Union

GDP Gross Domestic Production

IMF International Monetary Fund

INSEE National Institute of Statistics & Economic Studies

NBER National Bureau of Economic Research

OECD Organisation for Economic Co-operation & Development

SME's Small & Medium Enterprises

TCI Trade Confidence Indicator

VAT Value Added Tax

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INTRODUCTION

The current financial turmoil revealed information gaps in both the interrelated financial system and real economy. Following the IMF's Spring Meetings in April 2009, a global statistical response to the economic and financial crisis emerged: data gaps were to be identified and appropriate proposals for strengthening data collection to be provided for[1].

The international community proposed to go beyond the conventional statistical production approaches by improving the availability of sectoral balance sheets for non-financial corporations and households, as well as obtaining timely and higher-frequency economic and financial indicators[2].

Regarding these new recommendations, several central banks focused on collecting a variety of data and indicators about market developments based on surveys in parallel with the conventional methods. Among those surveys, the so-called “Business Survey” is one of the most important tools in monitoring business cycles, and in helping policymakers to get more timely statistics[3].

Developed countries didn’t experience major data gaps, and yet, responses to the financial crisis were mainly addressed to them in order to avoid future crisis and support early warning efforts. What would be the case for emerging markets, where larger statistics and information gaps exist? It is provided that the lack of proper macroeconomic statistics has negative impact on investment, thus on economic growth usually leading to a speculative climate and estimations, conducting emerging markets to severe crisis.

[1] “The Financial Crisis and Information Gaps”, Report to the G-20 Finance Ministers and Central Bank Governors, prepared by the FSB secretariat and IMF staff, October 29, 2009.
[2] “Macroeconomic Statistics and the Recent Financial Crisis”, Statistics Department IMF - 23 February 2010.
[3] In this context, the IFC has sponsored 3 Workshops “The Use of Surveys by Central Banks”; Pune-India, 27-30 June 2007; Buenos Aires, 11-13 December 2007; Vienna, 18-20 March 2008.

In view of the growing importance and significance of qualitative statistics, we decided to examine how the sentiment information obtained from the BS conducted by the BDL could be a useful tool for policymakers in conjunctural analysis and short-term forecasting.

First, this paper presents briefly the methodological approach of the BS conducted by the BDL since 1996.

Second, it exploits the BS results by selecting and constructing single and composite indicators.

Finally, it shows how some of these indicators could be helpful in monitoring business cycle and predicting turning points in the Lebanese economy during the last 12 years.

1. Methodological approach

BSs, named by Piatier “Statistiques sans chiffres”, emerged immediately after the Second World War in Europe. These prompt and qualitative surveys were conceived to monitor business cycles and forecast short-term developments in all major industrial countries.

During the 1970s, the EU established a standard framework for BSs to facilitate comparisons between countries, and to produce economic indicators for country groups. Two decades later, the OECD has developed, in collaboration with the EU, the “harmonized business tendency surveys”, in order to expand this system to transition and developing countries in Europe, North-Africa, Asia and Latin America[4]. As for the Middle-East, Lebanon, Turkey and Israel are the only nations that conduct regular BSs[5].

In Lebanon, the BS was launched in 1996, initially in industrial and commercial sectors, followed in 1998 by the construction and public work sector, and in 2000 by the tourism sector (Hotels and Restaurants)[6]. The BDL has followed international knowledge and experience by adopting similar methods undertaken by the INSEE and Banque de France. Furthermore, this methodology is in line with the harmonized business tendency surveys implemented by OECD[7], thus allowing comparison of the results across various countries.

[4] Development in this field is also due to the activities of the Center for International Research on Economic Tendency Surveys - CIRET.
[5] See the main advantages of the BS in annex 1.
[6] This sector is excluded from the study.
[7] “Business Tendency Surveys, A Handbook” - OECD, 2003.

1.1. Sample selection

In accordance with the harmonized system, sectors that are most sensitive to cyclical fluctuations have been selected: Industry (which represents 9% of GDP)[8], Trade (26% of GDP) and Construction-Public Work (20% of GDP).

The sample represents 5% of total population for each sector. Its selection should permit for cost-reduction, rapid execution and representativeness. The use of stratified random sampling is the ideal sampling method for BSs. Usually Strata (subpopulation) are defined in terms of the size of enterprises and the kinds of activities in which they are engaged.

The choice of firms is random and the sample is stratified by size and by activity, so as to cover all the three sectors in every region (Mohafaza) in Lebanon.

The size of the enterprises is represented by the annual turnover of each one of them[9]. Large firms are almost entirely included in the sample, as they represent a large market share. SMEs have also been integrated, as they are known to have a more pronounced direct impact on short-term economic developments, and are consequently quicker to report changes in cyclical movements.

Concerning the activity criteria, each sector is divided by type of activity: the industrial sample contains firms that belong to four sub-sectors: Intermediary Goods, Capital goods, Consumer and Durables goods. The trade sample consists of enterprises that exercise wholesale and retail sales in three types of products: Intermediary Goods, Capital goods, Consumer and Durables goods.

[8] Lebanese National Accounts, 2008. The evolution of these sectors is usually correlated with key macroeconomic aggregates: Industry with GDP, Trade with Consumption and Construction-Public Work with Gross Fixed Capital Formation.

[9] Annual turnover brackets.

1.2. Questionnaire form

The survey is easily completed and the questions are simple and of a qualitative nature. Questionnaires are filled out every quarter by senior managers, as they are better capable of answering questions without referring to accounts, and able to transmit anticipation of business evolution.

The questionnaires have been formulated according to the one used in France by the INSEE, taking into consideration the specificities of the Lebanese economy. The information requested relate to judgments on past trends, on current situation and on expectations for short-term developments of the main economic variables (i.e Production, Demand, Investments, Inventories, Orders, Prices, Sales, Construction…).

Questions are formulated as multiple choices, requesting answers of type "up", "same" or "down", (i.e. "improve", "unchanged" or "worsen") for each variable[10].

1.3. Balance of opinion

BSs can be defined as *Economic Trend Surveys* or *Opinion-Based Survey* as they refer to judgments on tendencies. Respondents have three reply options (up=+1 / same=0 / down=-1).

A “BO” is obtained for each variable, equivalent to the difference between the proportion of interviewed managers estimating that there has been an improvement and those who consider that there has been a decline in the said variable. For example, if 50% of managers in the Industry sector have reported an increase in their production levels, while 35% have reported a decrease, the BO related to production would be equal to 50% - 35% = 15%.

[10] Refer to annex 3.

1.4. Procedure and time frame

In order to get a quick publication of the results every quarter, the process of the BS follows a strict calendar of two stages:

Data collection — The territory is divided into 5 Mohafaza: Beyrouth, Mount Lebanon, North, Bekaa and South. The survey's team has representatives in each of the BDL branches conducting surveys in their own geographical areas. Questionnaires are sent to all enterprises either by fax, mail or personal interview during the first week of the month following the quarter under review.

Statistical data treatment — The received questionnaires are centralized in BDL main branch in Beirut. Their answers are entered in a special database program that calculates balances of opinions, by region and by sector, after weighing and seasonal adjustments have been applied.

Results weighing

The importance of the answer is assumed to depend on the size of the enterprise, since answers from a large firm have more weight than answers from a small one.

According to OECD, the firm's value added or the number of its employees should be used as the weighing variable as the BS results will then most closely reflect movements in GDP. Because value added data are not available, annual turnover margins of the enterprise have been selected as the most suitable weighing variable. This confidential information about turnover is requested by size classes, rather than exact numbers so that the information can be easily provided without referring to accounting records.

Seasonal adjustment and smoothing technique methods

The questionnaires eliminate seasonal variations by asking respondents to give their opinion about the evolution of their activity during the quarter under review compared to the same quarter of the previous year. Even so, some seasonality remains in many time series that show seasonal variation[11]. Therefore, seasonal adjustment, a prerequisite for cyclical analysis, is carried out via the X-11 ARIMA program of the US Bureau of the Census, using the additive version[12] for the BS series.

Finally, smoothing technique methods are used. Cyclical movements could be volatile and some short–lived false cycles may obscure true cyclical movements. One way of reducing this cyclicality problem and screening out false cycles is through smoothing using a simple centered moving average (3 quarters moving average).

This whole process takes one month, and the survey results are released in time to be useful to policymakers and analysts. They are published officially in the BDL quarterly bulletin and are presented at the end of each quarter to the BDL Open Market Committee. These qualitative statistics, complemented by real, monetary and financial quantitative data[13], help monetary authorities in assessing Lebanon's economic situation and therefore implementing adequate timely policies[14].

[11] For example, Sales in the trade sector is a seasonal series. There are, typically, peaks at the fourth quarter (seasonal highs) and dips at the first quarter (seasonal lows) due to year-end holidays.
[12] We use specific seasonal adjustment software (E-Views). When we have zero or negative values in a series we implement the additive model.
[13] Coincident indicator, CPI, BDL Reserves, commercial banks deposits and credits, interest rates, public debt and financial market statistics
[14] Refer to annex 2.

2. Business survey results: a useful tool for conjunctural analysis and short-term forecasting

The conjunctural analysis aims at understanding the recent development of the economy, as well as foreseeing its evolution during the coming months.

Conjunctural analysis has deeply changed in the last decades[15]. The number of statistical tools used by analysts has increased and their quality improved: establishment of annual and quarterly national accounts, enlargement of the coverage provided by conjunctural indicators and launching of BSs designed for the conjunctural analysis' specific needs.

In Lebanon as in most developing countries, the statistical sources of conjunctural analysis are insufficient[16]. BS carried out by the BDL remains consequently the main tool for conjunctural analysis. Its importance lies in the fact that it integrates corporate managers' past, present and future judgments on the main economic variables[17]. The analysis of these macroeconomic variables' fluctuations enables us to obtain more reliable estimations on conjunctural cycles.

The economists' interest in the cyclicality of economic variables goes back to the second half of the 1940's, at the instigation of the NBER, which laid the methodological foundations of conjunctural research. The NBER defines business cycle as:

"Recurrent sequences of alternating phases of expansion and contraction in the levels of a large number of economic and financial time series"[18].

The classical method for measuring conjunctural cycles consists in studying the national production or GDP fluctuations, on either side of a stable tendential growth rate[19].

[15] Alfred Sauvy, is considered as a pioneer in the field of conjunctural diagnosis and treatment of temporal series in the 1930's. He established the three phases of conjunctural analysis: description, diagnosis and forecast of main economic aggregates such as GDP, Employment, Prices and Foreign Trade.

[16] While national accounts were interrupted due to the war, Lebanon resumed their preparation in 1997. Concerning conjunctural indicators, only the CPI is calculated by the Central Administration for statistics on a monthly basis.

[17] Such as: industrial production, sales, prices, employment, and investment.

[18] See also the basic definition of Burns and Mitchell (1946). They were the pioneers in the field of conjuncture empirical measurement.

2.1. Selection criteria of cyclical indicators

It is only in 1961 that the NBER started to outline the conjunctural situation in a monthly magazine entitled: "Development of business cycles" where the cyclical indicators-based approach is made official. A list of 26 indicators is described by G.H Moore in an article entitled "Business Cycle Indicators"[20]. Several reviews have taken place over time, in the light of the new available information.

Concerning the construction of such indicators, it could be different between regions but the selection process is the same by choosing indicators which fit a number of criteria. In 2001, the United States Conference Board presented an expanded set of economic and statistics criteria in selecting data series for its composite indicators. These are: economic significance, conformity to the business cycles, consistency of timing, statistical adequacy, smoothness and frequency[21].

If we test the ability of Statistical series derived from BS's to predict turning points, we find that they are very suitable as cyclical and leading indicators:

In terms of economic significance and cyclical behavior, variables which measure the early stage of production, respond rapidly to changes in economic activity and measure market expectations could give advance warnings of changes in the direction of economic activity.

Besides, BS variables related to judgments and expectations register a change in the cycle earlier than corresponding quantitative statistical series. In fact, judgments and expectations lead to plans and only after these plans have been implemented they will be reflected by conventional statistical data.

Finally, BS series fit practical and statistical considerations like the frequency of publication (every quarter), timeliness and availability of a long time series relatively smooth with no breaks. The smoothness of the series is partly explained by the fact that BS qualitative data are less sensitive to disruptive events and exogenous shocks that could affect quantitative statistics (unusual weather conditions, war…).

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[19] The NBER is not only interested in the GDP, but also in industrial production, employment, revenues, wholesale and retail, in order to assess the status of economic cycles. These variables, inter alia, represent cyclical indicators that either lead or coincide with the business cycle.

[20] G.H Moore have proposed a list of preliminary indicators in 1950 in: "Statistical Indicators of Cyclical Revivals and Recessions".

[21] See annex 4.

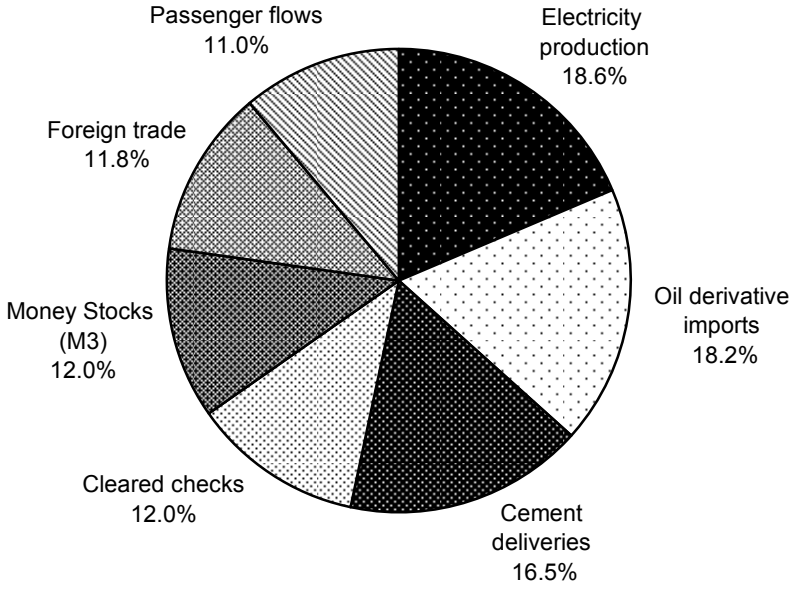
However, it's to be noted that the selection and construction of cyclical indicators relying on either quantitative or qualitative data is still relatively rare in developing countries like Lebanon. The main limitation has been data availability and the lack of long time series statistics.

With our relatively short but significant 1996-2010 sample we can, however, tackle this issue by selecting among the BS series the best cyclical indicators that ensure the description of the conjunctural phases of the Lebanese economy as a whole and the prediction of turning points.

2.2. Coincident and business indicators: new instruments to help in conjunctural diagnosis in Lebanon

Inspired by the cyclical indicator cited above, the BDL adopted in 1994 a composite indicator named "coincident indicator" which is a monthly approximation to the GDP. It is composed of eight economic variables that reflect the Lebanese economic activity.

Chart 1. Coincident Indicator's Components



Source: Statistics & Economic Research Department, BDL

The CI[22] 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.

In parallel to the quantitative CI, it would be interesting to propose several business indicators summarizing the quarterly information contained in the BO provided by the BS.

Regarding the subjective nature of the answers, interpretation of BS data is more complicated than traditional statistics. In fact, the BO is not considered as the growth rate of the variable under study but as an indicator of the evolution in its trend[23]. This is why long series of results are needed in order to analyze them and compare them with other quantitative data such as the CI after passing through several filters[24].

Business indicators will be divided in two categories:

- Variables representing the BO of every single survey question.
- Composite indicators that combine several questions into a single composite indicator.

Both single and composite cyclical indicators will be constructed around the reference series (the quantitative CI: proxy of GDP) which is used to establish the "timing classification" of statistical indicators into Leading, coincident and Lagging indicators and the "direction classification" into procyclical, countercyclical and acyclical variables[25]. The cross-correlation coefficient is also calculated to examine the "general fit" of the selected indicators in relation to the reference series at all stages of the cycle.

[22] The monthly CI is de-trended and transformed into quarterly series in order to compare its evolution with the quarterly business survey results. This is done by taking the arithmetic mean of the three months in the quarter and calculating the year-on-year growth.
[23] The BO is seasonally adjusted and centered in all the charts.
[24] Seasonal adjustment, outlier detection, de-trending and smoothing techniques.
[25] See annex 5.

2.2.1. Indicators based on single questions

Seeking to keep only the series that better meet the economic and statistical criteria, 13 indicators are selected in different sectors and divided among three groups: coincident, leading and lagging indicators.

Table 1. Indicators based on single questions

Selected Indicators	*Direction*	*Timing*	*Cross-Correlation Coefficient*
I. Industry			
1.1. Production	Procyclical	Coincident	0.91
1.2. Demand	Procyclical	Coincident	0.90
1.3. Investment	Procyclical	Leading/Lagging	0.69
1.4. Stock of finished goods	Counter-cyclical	Lagging	0.27
1.5. Stock of raw materials	Counter-cyclical	Lagging	0.36
1.6. Registered orders	Procyclical	Leading	0.83
1.7. Expected production	Procyclical	Leading	0.52
II. Trade			
2.1. Sales	Procyclical	Coincident	0.87
2.2. Stock of goods	Counter-cyclical	Lagging	0.10
2.3. Expected sales	Procyclical	Leading	0.67
III. Construction and Public Work			
3.1. General activity	Procyclical	Coincident	0.83
3.2. Construction	Procyclical	Coincident	0.79
3.3. Portfolio of projects	Procyclical	Leading	0.78

Source: Statistics & Economic Research Department, BDL; own classification and calculations.

Coincident group

The coincident indicators include industrial Production and Demand, as well as commercial Sales.

The conjunctural analysis is considered by many as the follow-up and the forecasting of industrial production, but statistics in this field are generally incomplete and belated. The question in the BS about the industrial production's quarterly development is very important since the industrial production index is not calculated in Lebanon. By calibrating the BOs over the years, we can first of all estimate the production variation in the very recent past for which

we do not have accounting measures. The industrial production's fluctuations are very similar to those of the global economic activity, which explains its coincident character. Moreover, knowing that the firm's main decision on the quantity of output to be produced depends on the size of total demand, the evolution of industrial production and demand are strongly correlated.

Consumption is by far the GDP bigger component; thus, consumption evolution has a decisive impact on the economy short-term dynamics. However, the conjunctural statistics concerning consumption are available only through the follow-up of the development of commercial sales (consumption proxy) in the BS: a rise in consumption leads to a decrease in savings and consequently to an increase in investment which, in turn, leads to an improvement in production and the available gross revenue.

These indicators have similar performance to the business cycle and their coincident character have been proved and tested over the years by several studies on cyclical indicators[26]. Our results confirm the coincident nature of these qualitative variables in the case of the Lebanese economy.

The evolution of General activity and Construction in the Construction and Public Works sector coincides as well as these latter with the economic activity. This sector plays an important role in economic development in developing countries. Many writers have referred to its effect on employment creation, others to its multiplier effects in the national economy[27].

[26] See Philippe Sigogne et Véronique Riches : "Genèse des indicateurs cycliques", revue de l'OCDE No 45, June 1993.

[27] Turin (1973) and Wells (1987) found an association between construction investment and economic growth. That result is consistent with our results and with the classical approach in growth theory in which capital formation is the main engine of economic growth and development.

Chart 2. Business Coincident Indicators: Breakdown by question

Source: Statistics & Economic Research Department, BDL; own calculations.

Leading group

Among leading indicators, we have selected mainly: expected production and sales, registered orders in Industry and portfolio of projects in the Construction sector[28] These variables, among others, obviously reflect business confidence which give early information about changes in business behavior and consequently in economic activity and cyclical developments.

It's widely recognized that business people's subjective individual expectations play a key role in economic developments and short term forecasting. As business confidence and optimism raises we typically see similar increases in investments, production, consumption and economic growth.

Chart 3 shows that expected production and sales are the best proxies for confidence with a respective correlation coefficient of 0.52% and 0.67%.

Registered orders and portfolio of projects can be also an important determinant of confidence in the industrial and construction sectors: Increases in orders leads to increases in production, drops in orders are followed by a build-up of inventories and, eventually, a decline in production.

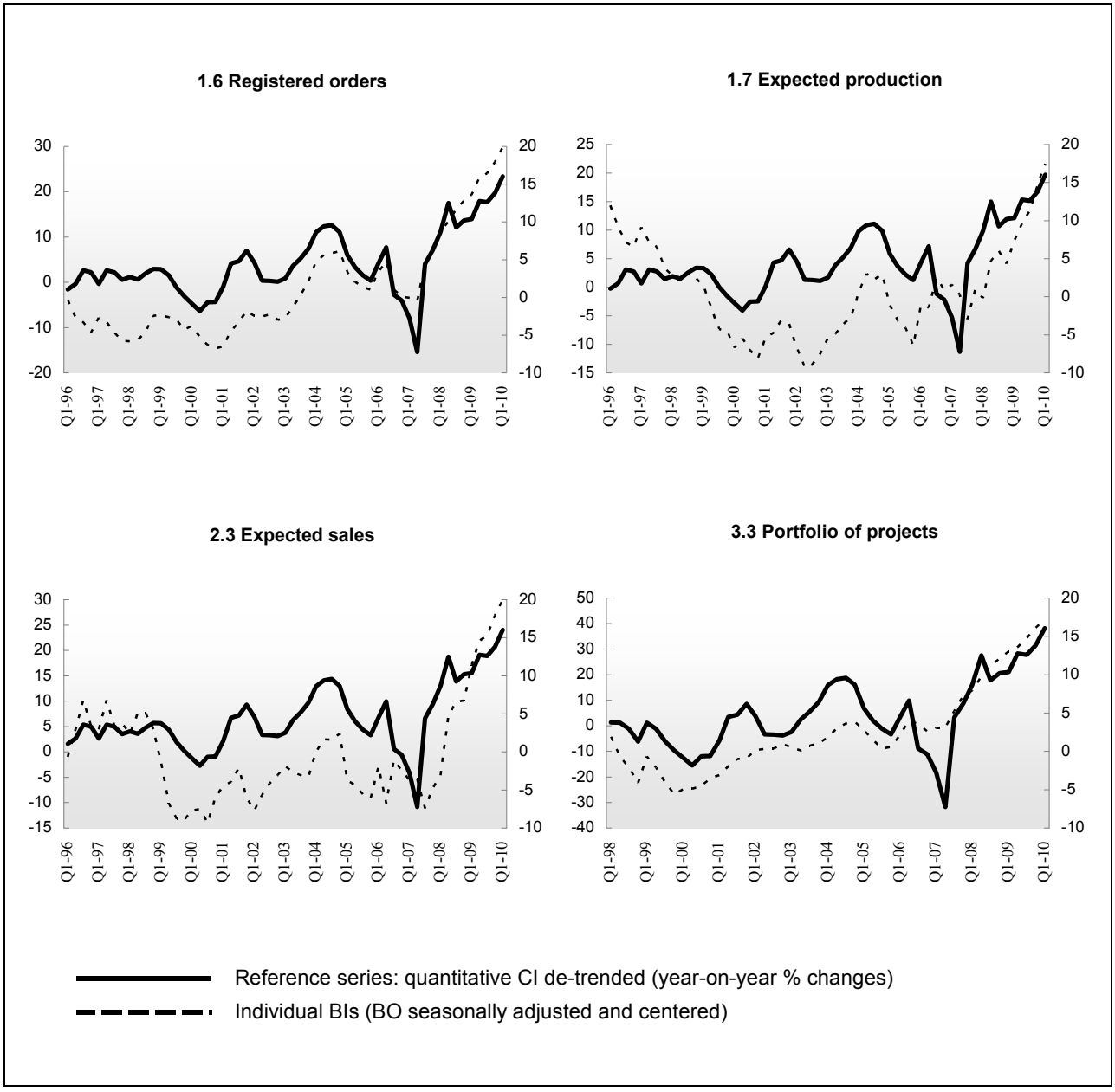
As for the portfolio of projects, it is, in essence, the result of savings, but particularly a sign of entrepreneurs' confidence in the durability of growth. As the saying goes: *"When the building trade is doing well, everything is doing well"*, this sector, and particularly this variable, is a driving force for the whole economy. It creates job opportunities and thus, impacts on the final consumption and then, on economic growth.

These two indicators are supposed to be leading ones, but their leading nature is not pronounced, or even absent, during the sample period. They might be contaminated with other kind of political and security factors. Therefore, when analysis is made, these factors must be considered in order to track the business cycle appropriately.

According to Chart 3 (1.6-3.3), there is no evidence of a significant lead in the timing of the turning points but a similar evolution with the business cycle.

[28] International systems of Leading Indicators-Main leading indicators- "Cyclical Indicators and Business Tendency Surveys" OCDE, Paris 1997.

Chart 3. Business Leading Indicators: Breakdown by question



Source: Statistics & Economic Research Department, BDL; own calculations.

Lagging group

Investment contributes to a large extent to conjunctural fluctuations, plays a vital role within the supply behavior of companies, and is decisive for the development of production capacities and competitiveness.

Based on the usual theoretical pattern, which interprets the cycle as being the result of the interaction between the multiplier and the accelerator, and which confers a crucial role to the progression of investment compared to production, industrial investment must be considered as a leading indicator. However, according to E. Malinveau (1982)[29], the investment's leading nature does not appear systematically in real developments. He explains this mechanism as follows: on the short term, the need of equipment and stocks is practically proportional to production, therefore there must be huge investment and stocking when production grows rapidly, while few investment and rather fewer stocking would be sufficient when production declines. Once started, any fluctuation in production causes a relatively stronger fluctuation in investment and stocking, which accelerates the initial movement.

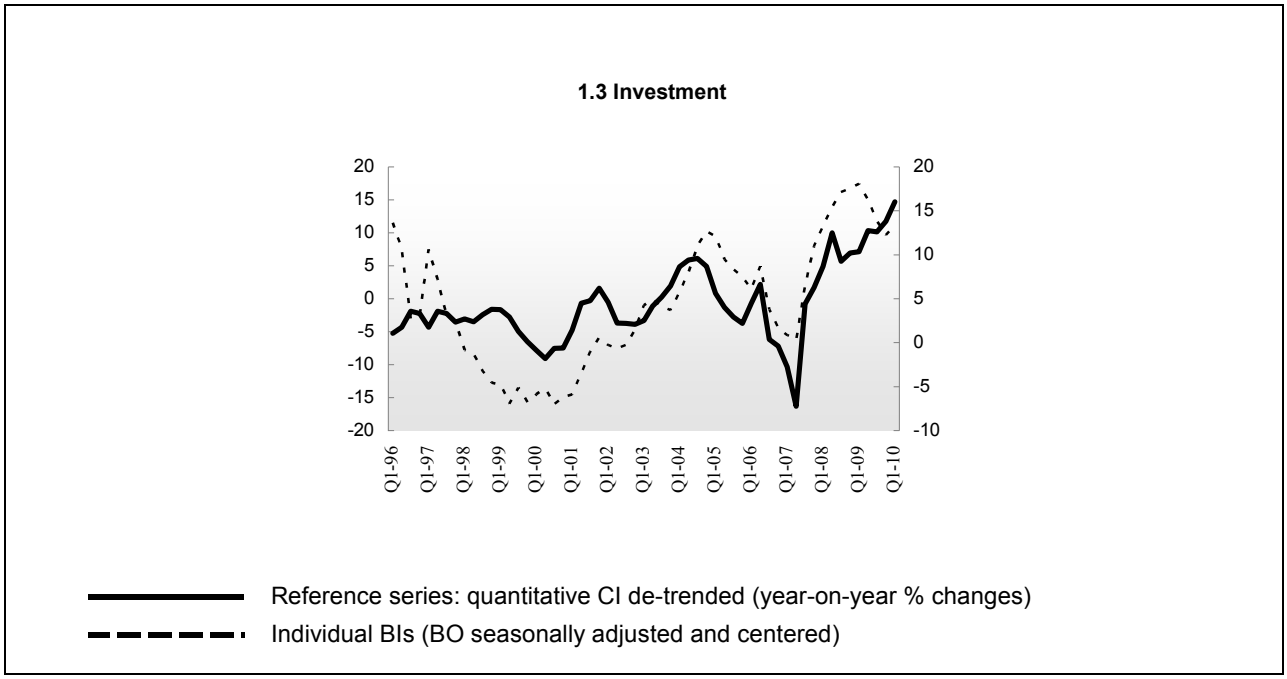
The question concerning investment expenditures in the industrial sector represents the only infrannual, rather quarterly, source on industrial investment in Lebanon[30]. In fact, a careful study of the evolution of its BO shows that the latter is lagging after Q1-2004 compared to a leading evolution before that period.

Having a low cross-correlation with the reference series and counter-cyclical properties, inventories of finished good and raw material in the industrial sector and commercial stocks questions are excluded in our cyclical analysis.

In spite of the stocks' countercyclical character and the ambiguity of the BO concerning this question[31], stocks-related variables can be a good indicator for the manager's assessments of the current production level, considering the suitability of the production with the demand.

[29] Edmond Malinveau, Théorie macroéconomique, Paris Dunod, 1982, tome2.
[30] The sales of inter-industrial goods in the commercial sector represent also an indirect indicator for investment.
[31] The balance of opinion concerning the stock level of industrial and commercial finished goods is the difference between the percentage of above-normal and below-normal answers and represents a blind stock level by reference to the normal level. This normal level is taken as a reference by industrials changes over recession and recovery cycles, but we may consider as certain that the normal stock increases simultaneously to the firm's production.

Chart 4. Business Lagging / Leading Indicator



Source: Statistics & Economic Research Department, BDL; own calculations.

Lastly, it's worth noting that the nature of the BS variables, whether leading, coincident or lagging, is not always verified and sometimes suspected due to the variability and subjectivity of the BS answers. Consequently, their fluctuations could be at times unrelated with the acceleration and deceleration of the reference series.

2.2.2. Composite indicators

Most institutes conducting BSs select a set of survey series and combine them into a single composite indicator. This is done in order to reduce the risk of false signals, and to provide a cyclical indictor with better forecasting and tracking qualities than any of its individual components. These indicators are calculated on the equally weighed average of every single indicator in line with the OECD system.

The EU and the OECD presented in 2003 four composite confidence indicators that they found useful in several countries[32] for monitoring the current economic situation and predicting the likely changes in the short-term. These indicators were given as examples, since other combinations may perform better for particular countries, such as the following:

Business Composite Indicator (BCI) [33]

This indicator is interpreted as a measurement for the global conjunctural climate as seen by surveyed managers. It is constructed by selecting and combining the appropriate coincident variable from each sector, providing a more global economic view. The BCI is coincident with economic fluctuations and has a strong correlation coefficient of 0.80%.

Confidence Composite Indicator (CCI) [34]

Confidence could be low, because business people are uncertain about prospects and or unhappy with current company performance. This may reflect uncertainty about the macro-environment within which the company operates[35]. Usually this type of sentiment indicator is designed to forecast the direction of the economy and is considered as leading indicator.

In Lebanon, Confidence is mainly related to political and security stability that explain the lagging nature of this indicator after Q1-2005. Starting this period, the sequence of turmoil has hardly affected the economic activity thus spreading a pessimistic business climate which started to recover one year ago.

[32] The industrial confidence indicator (ICI), The Construction confidence indicator (CCI), The Retail trade confidence indicator (RCI) and the confidence indicator for services (SCI).
[33] It's the arithmetic average of the answers (BO) to the questions on current Production, Sales, General activity and Construction.
[34] It's the arithmetic average of the answers to the questions on expected production and sales.
[35] The strength of the sentiment and the behavior of the managers can be seen in the magnitude of the Chart 5. The chart is determined by the difference between positive and negative answers. Therefore a headline above zero indicates positive confidence or optimism, while a negative number shows negative confidence or pessimism.

Trade Confidence Indicator (TCI) [36]

It is inspired from the OECD composite confidence indicators. In Lebanon, the leading nature of this indicator is more pronounced in the beginning of the sample period comparing to the end of it because of the political and military turbulences between 2005 and 2008. This might be also attributable to the sharply leading nature in one of the three questions considered (expected sales) while the other questions have no leading properties (current sales and stocks).

Table 2. Composite Indicators

Composite Indicators	***Direction***	***Timing***	***Cross-Correlation Coefficient***
Business composite indicator (BCI) (= 1.1 + 2.1 + 3.1 + 3.2 / 4)	Procyclical	Coincident	0.80
Confidence composite indicator (CCI) (= 1.7 + 2.3 / 2)	Procyclical	Leading	0.62
Trade confidence indicator (TCI) (= 2.1 + 2.3 – 2.2 / 3)	Procyclical	Leading	0.83

In all, among the composite indicators constructed, the BCI will be chosen as the best significant tool for tracking economic changes. It combines the relevant coincident indicators in each sector reflecting consequently the business climate as a whole.

[36] It's the arithmetic average of the answers to the questions on current sales, expected sales and stock of goods (inverted).

Chart 5. Composite Indicators

Source: Statistics & Economic Research Department, BDL; own calculations.

3. The lebanese conjuncture as seen through the coincident indicator and the business composite indicator: 1998-2010

Small countries with open market economy, like Lebanon, differ considerably from the industrialized one in the nature and characteristics of short-run macroeconomic fluctuations: cycles are generally shorter and irregular.

By monitoring the movement of the CI and the BCI, the different phases and turning points of the Lebanese business cycles can be detected from 1998 till 2010.

Chart 6 shows the different peaks and troughs in the Lebanese economy during the sample period where shaded areas correspond to downturns in the CI (the reference series) and unshaded areas to upturns.

The results are reported in table 3: from Q1-1998 to Q1-2010, there were 8 turning points, consisting of four troughs and four peaks (referring to Bry and Boschan method)[37].

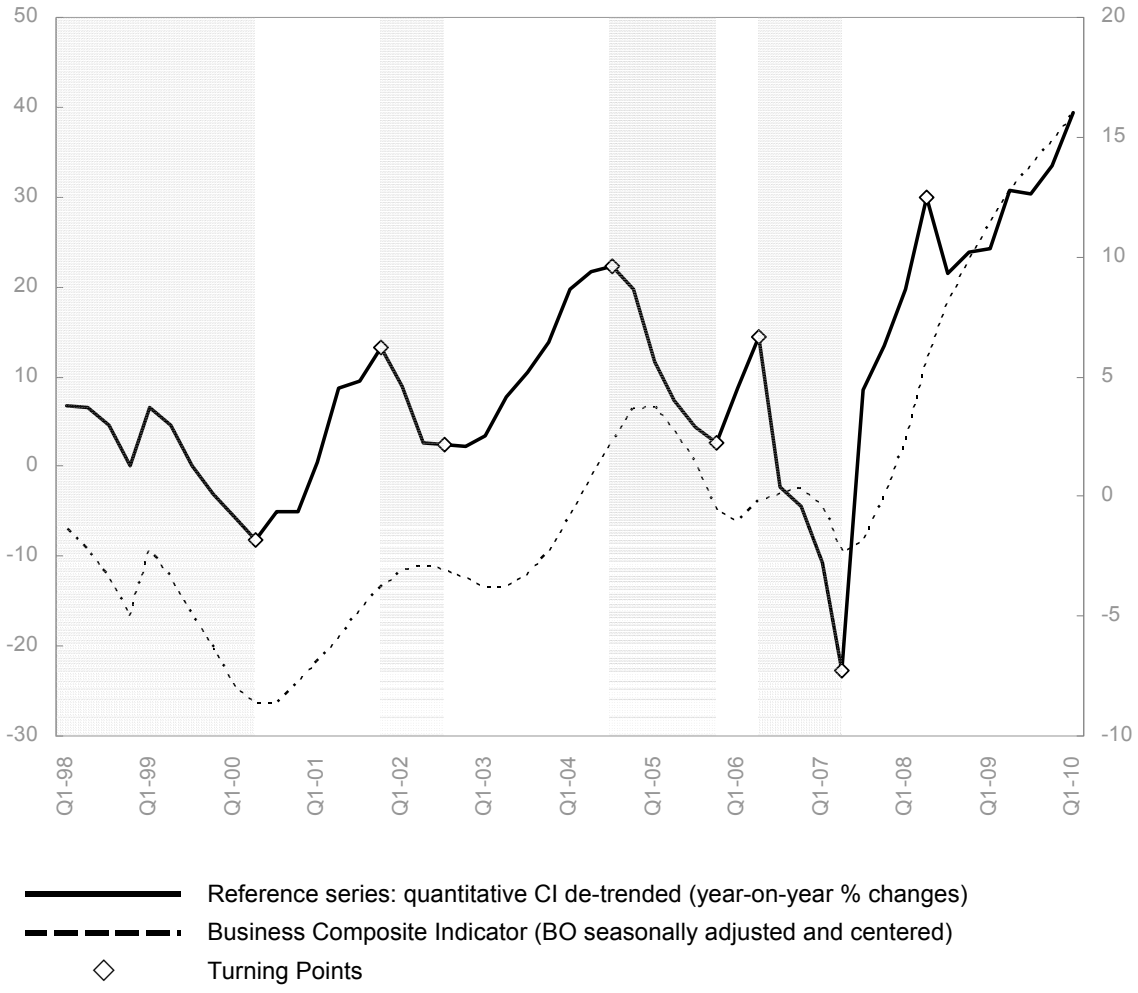
Table 3. Business Cycles in Lebanon

Trough	Date	Duration of Upturn (Quarters)	Peak	Date	Duration of Downturn (Quarters)
T1	Q2-00	6	P1	Q4-01	3
T2	Q3-02	8	P2	Q3-04	5
T3	Q4-05	2	P3	Q2-06	4
T4	Q2-07	4	P4	Q2-08	-

Source: Statistics & Economic Research Department, BDL; own calculations.

[37] See annex 6.

Chart 6. Business Cycles in Lebanon



Source: Statistics & Economic Research Department, BDL; own calculations

Q1 1998–Q2 2000: Recession

The public finance crisis along with the restrictive policy that followed starting 1998 had together led to a drop in investment and a recession turning into depression in the year 2000. Chart 6 points out how the crisis in 2000 had been accompanied with a significant slowdown in the CI growth as well as with a significant decline of the activity stated by the negative value of the surveyed managers' BO in the different sectors.

The causes of the said crisis are mainly endogenous and structural. In fact, the open-door policy adopted by the Lebanese government years ago had

been accentuated in 2000 through the sudden and spectacular customs duties taxes cut. Nevertheless, this policy had multiple adverse effects on several economic sectors exposed to the foreign competition such as the industrial sector that witnessed a massive closing of enterprises as well as a severe production drop.

Moreover during this period a general decline in prices and Demand were depicted causing deflation in conjunction with a notably decrease in the purchasing power[38] and an increase in indirect taxes[39].

By comparing the evolution of the CPI with the sales prices or industrial final good prices from the BS results, we can clearly notice that prices felt from 2.7% in 1999 to 0.05% in 2001 with a similar decline in the BO concerning prices. Annex 7 shows a concordance between the quantitative indicator and the qualitative ones except in the period between 2003 and 2004 where the quantitative statistics on inflation shows a relative decline comparing to a significant increase in both sales prices and industrial final good prices due to the introduction of the Value added tax[40].

Q3 2000–Q3 2004: Recovery & Expansion

Upon Rafic Hariri's return as Prime Minister after 2000, the resuming of the investments following 11 September 2001 as well as the effects of Paris II Agreement[41] banishing the fears from a financial crisis, had contributed to the revival of the economy reaching its edge in Q3-2004.

[38] The purchasing power felt down by 31.8% between 1997 and 2003 referring to Reach-Mass institute.
[39] Indirect taxes/Total tax revenues increased from 45.2% in 1992 to 70.6% in 2002- Ministry of Finance.
[40] The VAT was introduced in February 2002 and implemented progressively between the transitional period from 2003 till 2004. The CPI which includes for 50% products activities exempted from VAT (medical services, hospitalization expenses, education and essential food product) was less affected than the BS prices.
[41] The 2002 Paris II Conference allowed a strong mobilization of the International Community to restructure the Lebanese debt. In total, Lebanon had also obtained financings of USD 10.1 billion (32% of the global debt).

Furthermore, the Association Agreement[42] signed with the EU in 2003 had also positive effects on the growth. Subsequently, the business climate started to quasi continuously improves starting that period indicating an increasing optimism in the business field (however keeping a rate inferior to its long period-average until Q3-2004).

Q4 2004–Q2 2006: Slowdown

The assassination of Rafic Hariri and all the political and security troubles in 2005 had put a term to this growth that slightly resumed in Q2-2006 despite the political instability. During that period, an obvious degradation in the confidence was shown in the real sectors of the economy. However, the banking sector had solely known how to grant confidence to the savers via the practice of a policy of support for the Lebanese Pound.

Q3 2006–Q2 2007: Recession

July 2006 war had harmful effects on the Lebanese infrastructure and consequently on the economic growth. This recession had reached its lowest point during the studied period reflecting a real deterioration in the business field accompanied with a negative growth rate. The disastrous results of the war had led, in January 2007, the international donors to meet again at the Paris III Donor Conference and pledge more than USD 7.5 billion to Lebanon for developing projects and budget support.

Q3 2007–Q1 2010: Revival & Strong Growth

After a political crisis paralyzing the public institutions over a period of one year and a half, the Paris III Agreement as well as the presidential election in June 2008 had contributed to a confidence regain translated into an economic revival on all the sectors' level and in particular on the construction one, nearly two years ago.

[42] Interim agreement signed on 1/03/2003, agreement in force on 1/04/2006.

Contrarily to some Gulf, European and Asiatic countries, Lebanon knew how to show a real resistance to the international financial crisis. The Lebanese exception against the crisis was mainly due to the cautious measures and regulations adopted by the BDL over the last years.

In addition, the remittances into Lebanon have increased since the start of the financial crisis as the expatriates preferred to liquidate a part of their fixed assets due to the bad world economic context and effectuate transfers into a trustworthy banking system.

Since then, the Lebanese banks benefited from very high liquidity ratios that pushed the BDL to promote credits assented to the productive sectors as well as on the housing loans[43]. These loans, benefiting from the exemption of the obligatory reserve, have contributed to a remarkable growth of the credits granted in Lebanese Pounds and subsequently to an activity revival in the industry and construction field.

The CI and BCI clearly reported this revival: The business climate indicator recovered starting Q1-2008 went on progressing and clearly exceeded its long period-average during the last two years (BO = +16).

Furthermore, the continuing annual growth of the CI since 2008 has reached historical values during the last quarters.

Finally, it's to be noted that the duration of upturns after the two troughs in 2005 and 2007 are shorter than those of 2000 and 2002. This is due to the fact that exogenous factors, like the political turmoil in 2005 and the 2006 war effect can have a significant negative impact on the economy but their upturn phases are relatively faster than those related to economic and endogenous considerations.

[43] See http: www.bdl.gov.lb, intermediary circulars no 195 (11/1/2010) and 213 (26/6/2009) related to basic circulars no 80 and 84.

CONCLUSION

This paper presents a pioneering analysis along with early results of how the statistical series provided by the Lebanese BS, conducted by the BDL, can be applied in the assessment of conjunctural economic situation and short term forecasting during the period 1996-2010.

The first part of the paper deals with the technical aspects of the BS statistical output: timeliness and transparency. It exposes brief but transparent information about the sample selection as well as the sources of the data and the methods used to edit and process them in time.

Information provided by this type of surveys essentially deals with opinions about the current and the near future state of the economy, and is considered as an early warning indicator because of its premature availability. In this context, the second part of this study attempts to extract business indicators from the BDL BS in order to track the Lebanese business cycle over the last 12 years and try to avoid possible crises by providing early signals of economic changes.

The results shown that between Q1-1998 and Q1-2010, there were 8 turning points, consisting of 3 peaks and 4 troughs. Only 2 individual indicators related to expectations (Expected Production and Expected Sales) and reflecting confidence were proved as short leading indicators. Besides, the CCI and the TCI seems particularly useful in predicting turning points during the stable period before 2005 with an average lead time of one quarter for peaks and troughs.

The BCI, reflecting the business climate as a whole, has been proved as a sound tool for explaining the different phases of expansions and recessions of the Lebanese business cycle.

It’s worth to note that cyclical indicators, especially leading ones, which perform well in one country, may not work well in another because of differences in economic and statistical system and other exogenous factors like political and security considerations.

Finally, since this is the first time that this topic has been dealt with in Lebanon, it is manifestly impossible to cover the broad subject of the title without some limitations. Thus, future expansions including improvement of the survey as a whole and at the sectorial level can be developed. Moreover, there is always a possibility to improve the cyclical performance of the business indicators by constructing other new composite ones combining several unexplored questions from the BS. These different lines proposed as future research could raise lastly a very relevant question for policymakers: To which extent BS results contribute to implement the adequate monetary policy?

ANNEX 1. Main advantages of the business survey

- BSs provide a rapid, low cost statistics of qualitative nature, which usually go ahead of conventional statistics (full reporting and census). The quantitative statistics are often disclosed with long delays. Likewise, in Lebanon, as in other emerging economies, there is a shortage of standard national accounts statistics (i.e. measurement of the GDP, investments…), which makes it impossible for policymakers to use them in analyzing the current situation or taking remedial actions to avoid financial and economic turmoil.
- These surveys explore domains where statistics are still scarce. The information covered by them goes beyond variables that can easily be captured in traditional quantitative statistics, such as information on early stage of production (i.e Registered orders, expectations for future production and sales, and manager's views on the overall economic situation)
- Qualitative data could be comparable across countries, regions and sectors. In Lebanon, the survey's results are released at national, regional and sectorial levels, allowing the depiction of business trends in each region and the comparison of evolution between sectors
- Firms have access to the survey's results, enabling them to assess their position within their sector of activity and their region, as well as monitoring the general trends in business activity.
- The statistical series derived from BSs are particularly suitable for monitoring business cycle and detecting turning points. Therefore, BSs are helpful for central bankers to analyze macroeconomic phenomena from a microeconomic perspective, and to consequently adopt the appropriate monetary policy.

ANNEX 2. Business survey process flowchart

ANNEX 3. Questionnaire forms

Construction and Public Works (Q2-2010)

I. Trend of your activity

Activity trend during the previous quarter compared to the same quarter of the previous year

	Below the normal	Normal	Above the normal
Both Construction & Public Works			
Construction			
Public Works			

Expectations for the next quarter compared to the previous quarter

	Below the normal	Normal	Above the normal
Both Construction & Public Works			
Construction			
Public Works			

II. Portfolio of projects

What is the status of your portfolio of projects at the end of this quarter?

Below the normal	Normal	Above the normal

III. Trend of construction costs

What was the trend of construction cost during this quarter compared to the same quarter of the previous year?

Below the normal	Normal	Above the normal

IV. Situation of your investments

Did you incur any investment expenditures during the previous quarter?

Yes	No

How do you expect your investment expenditures to evolve during the next quarter compared to the previous quarter?

Below the normal	Normal	Above the normal

V. Evolution of employment in your company

How did the number of employees evolve during the previous quarter compared to the same quarter of the previous year?

Below the normal	Normal	Above the normal

VI. Overview

How do you expect the overall activity in the building and public works sector to evolve in the coming quarter?

Below the normal	Normal	Above the normal

I. Evolution

Indicate the evolution of the following indicators during the second quarter 2010 compared to the same quarter of 2009

Please put an "X" in the corresponding boxes

	Decrease ↘	Stability →	Increase ↗
Production			
Demand			
Foreign Demand			
Prices of finished goods			
Prices of raw materials			
Number of employees			
Average monthly wage rate			

If the average monthly wage rate has increased, please state the percentage change: %

II. Actual situation

What is the present situation of the following indicators at end of June 2010?

	Below than normal	Normal	Higher than normal
Stock of finished goods			
Stock of raw materials			
Registered orders			

III. Expectations

How do you expect the following indicators to evolve during the third quarter 2010 compared to the second quarter 2010?

	↘	→	↗
Production			
Demand			
Foreign Demand			
Prices of finished goods			
Prices of raw materials			
Number of employees			

	Below than normal	Normal	Higher than normal
Stock of finished goods			
Stock of raw materials			

IV. Investments

How were the investment expenditures during the second quarter 2010 compared to the same quarter of the previous year?

Lower	Equivalent	Higher

How do you expect the level of your investment expenditures to be during the third quarter 2010 compared to the second quarter 2010?

Lower	Equivalent	Higher

V. Overview

How do you expect the activity in your industrial sub-sector to evolve during the next three months?

↘	→	↗

Commercial Enterprises (Q2-2010)

I. Evolution

Indicate the evolution of the following indicators during the second quarter 2010 compared to the same quarter of 2009

Please put an "X" in the corresponding boxes

	Decrease ↘	Stability →	Increase ↗
Sales volume			
Prices			
Number of employees			
Average monthly wage rate			

If the average monthly wage rate has increased, please state the percentage change: %

II. Actual situation

What is the present situation of the following indicators at end of June 2010?

	Below than normal	Normal	Higher than normal
Stock of goods			

III. Expectations

How do you expect the following indicators to evolve during the third quarter 2010 compared to the second quarter 2010?

	↘	→	↗
Sales volume			
Prices			
Number of employees			
Stock of goods			

V. Overview

How do you expect the activity in your commercial sub-sector to evolve during the next three months?

↘	→	↗

ANNEX 4. Statistical & economic criteria of business cyclical indicators

Economic significance	Its cyclical timing must be economically logical.
Conformity	The data series must conform consistently in relation to the business cycle.
Consistent timing	The series must exhibit a consistent timing pattern as a leading, coincident or lagging indicator.
Statistical adequacy	The data must be collected and processed in a statistically reliable way.
Smoothness	Its month-to-month movements must not be too erratic.
Frequency	The series must be published on a reasonably prompt schedule.

Source: http://www.investopedia.com/university/conferenceboard, Conference Board: Composite Index Of Leading Indicators-Chris Stone

ANNEX 5. Direction & timing classification of economic variables

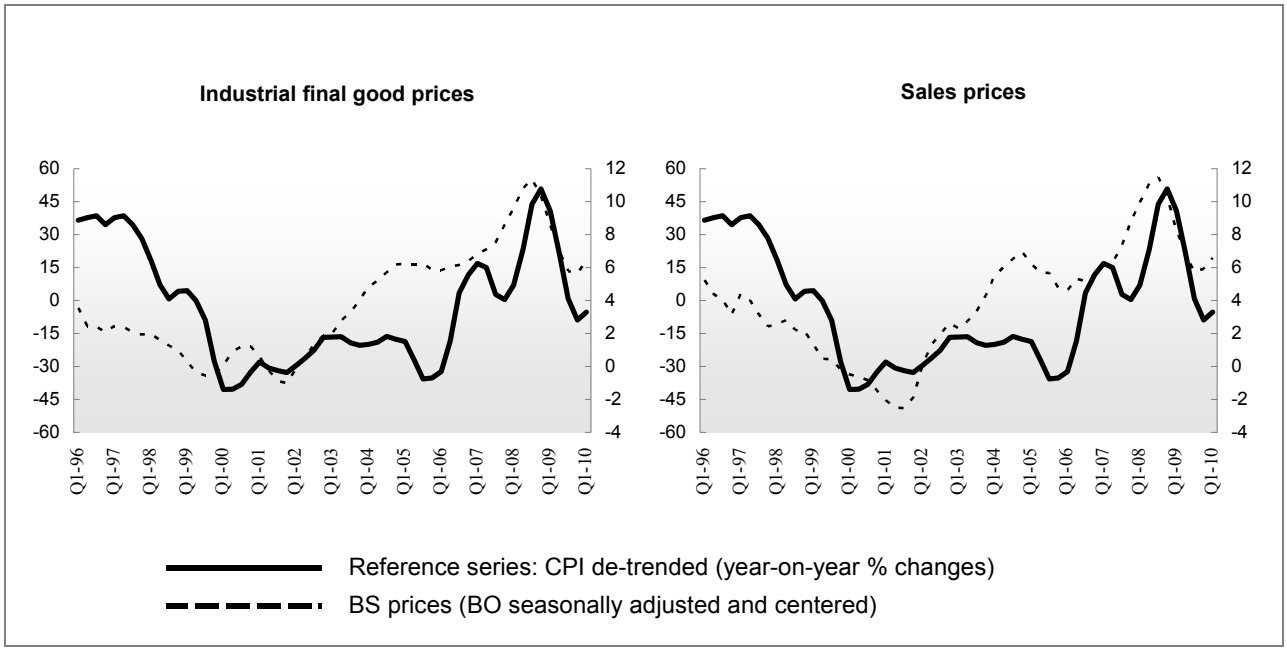
Variable Direction	*Procyclical*	The variable moves in the same direction as the business cycle. In a recession, the variable decreases. In an expansion, the variable decreases
	Countercyclical	The variable moves in the opposite direction as the business cycle. In a recession, the variable increases. In an expansion, the variable increases
	Acyclical	There is no clear relationship between the business cycle and the variable
Variable Timing	*Leading*	The variable tends to move slightly in advance of a peak or through in the business cycle. It helps to predict when a recession or expansion will begin or end
	Coincident	The variable moves at the same time as the business cycle
	Lagging	The variable begins to move after a peak or through in the business cycle

ANNEX 6. Assumptions for the quarterly Bry & Boschan procedure

▶	A peak (trough) must be followed by a trough (peak)
▶	A cycle (from peak to peak or from trough to trough) must have a duration of at least 5 quarters
▶	A phase (from peak to trough or from trough to peak) must have a duration of at least 2 quarters
▶	Turning points are not to be situated within the first or last 2 quarters of a time series
▶	The first (last) peak and trough must be higher respectively lower than values closer to the beginning (end) of the data series

Source: Everts Martin P., 2006, "Duration of Business Cycles", pp.7.

ANNEX 7. Consumer Price Index *versus* Business survey prices



Source: Consultation & Research Institute; Statistics & Economic Research Department, BDL; own calculations.

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