Irving Fisher Committee on
Central Bank Statistics

BANK FOR INTERNATIONAL SETTLEMENTS

Eighth IFC Conference on *"Statistical implications of the new financial landscape"*

Basel, 8–9 September 2016

Monitoring business cycles in Lebanon: Is economic growth cyclical?[1]

Sana Souaid Jad,
Central Bank of Lebanon

[1] This paper was prepared for the meeting. The views expressed are those of the author and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

Monitoring business cycles in Lebanon: Is economic growth cyclical?

Sana Souaid Jad

Abstract

Small countries with an open market economy, such as Lebanon, differ considerably from industrialized ones in the nature and characteristics of short-run macroeconomic fluctuations. This paper focuses on the Banque du Liban coincident indicator and the possibility to explore this composite indicator to explain short run economic fluctuations and business cycles in Lebanon. Based on Bry & Boschan procedure, this study examines the cyclicality of the coincident indicator growth. It lays out the different cycles and phases of Lebanese expansions and recessions with their respective downturn and upturns durations for the period 1993-2015.

Keywords: Business cycles, coincident indicator, expansions, recessions

Contents

I- Business cycle literature

Business cycles are the recurring and fluctuating levels of economic activity that an economy experiences over a long period of time. The National Bureau of Economic Research NBER defines business cycles as recurrent sequences of alternating phases of expansion and contraction. These cyclical fluctuations are persistent and the duration of a business cycle as a rule lasts several years. The four stages or phases of the business cycle are: Expansion, peak, contraction and trough.

In the literature, we have four types of cycles with different durations:

Kitchin inventory cycle (3-5 years)

Juglar fixed investment cycle (7-10 years)

Kuznet infrastructural investment cycle (15-25 years)

Kondratieff wave or long technological cycle (50-60 years)

Theories of business cycles are divided into two categories:

The first category states that cycles are exogenous and they are due to different external shocks (war, political shocks, change in raw material prices like oil prices…). The second argues that cycles are endogenous and self-generated by the market economy such as the interaction between demand and supply and Keynes multiplier-accelerator effect. The latter states that economic output depends on the level of the investment, the investment determines the level of aggregate output (multiplier), and is determined by aggregate demand (accelerator).

History has proven that both exogenous and endogenous factors could be the reason behind business cycles fluctuations. Moreover, Keynes theory states that monetary policy and fiscal policy can have positive role to play in smoothing the fluctuations of the business cycles, this is why usually expansion duration is longer than recession duration.

II- Methodology

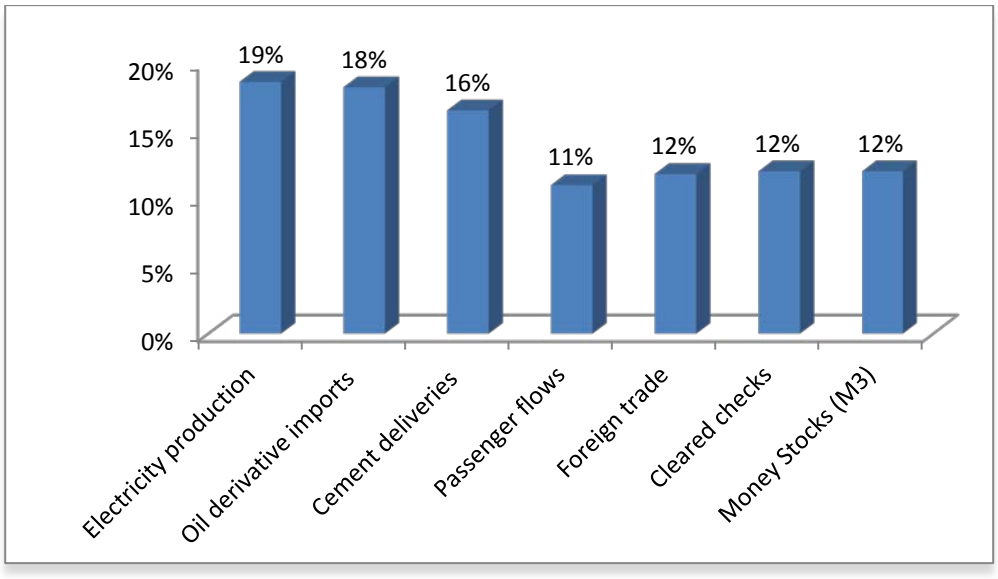
The classical method for measuring business cycles consists in monitoring the national production or GDP fluctuations. In Lebanon as in most developing countries, the statistical sources to analyze business cycles are insufficient, especially the ones related to national accounts.

Thus, given the importance of monitoring economic activity and the delay in publishing national accounts, researchers can use the BDL coincident indicator to sense economic developments on a monthly basis.

In this context, the Banque du Liban adopted in 1994 a composite indicator named "BDL coincident indicator" which gives an idea about GDP trends, without being a substitute. It is composed of seven economic variables that reflect the Lebanese economic activity.

1- Electricity production
2- Oil derivative imports
3- Cement deliveries
4- Passengers flows
5- Foreign trade(Imports and Exports)
6- Cleared Checks
7- Money Stocks (M3)

Figure 1.BDL coincident indicator components



The coincident indicator is computed from the sum of these variables, as weighted according to their importance. Weighting coefficients are derived from the results of standard regression of the components over GDP.

The BDL Coincident Indicator is strongly correlated with real GDP growth as shown by the national account. The econometric relationship between these two variables is the following:

$$\frac{\Delta GDP}{GDP} = 0.8\frac{\Delta IND}{IND}$$

Over the past years, it has been proved that this equation gives an accurate estimate of GDP. Moreover, the BDL Coincident Indicator is coherent with the BDL Business Survey results, where three qualitative variables "Industrial Production, Sales and Construction" have a coincident relationship with the BDL Coincident Indicator.

All the components of the BDL Coincident Indicator are in real term (M3, cleared checks and foreign trade are in fact deflated and converted to real values using the CPI inflation rate) and adjusted from sharp fluctuations resulting from seasonal and non-seasonal factors.

Based on the cycle's literature and inspired by Bry & Boschan quarterly procedure and the NBER methodology, we will test the cyclicality of the BDL coincident indicator by detecting the different phases and turning points of the Lebanese business cycles from 1993 till 2015.

- The first step is to transform the monthly data to quarterly data.
- The second step is to calculate the quarter to quarter growth of the BDL coincident indicator.
- Finally, the cycles in a four–quarter moving average are identified.

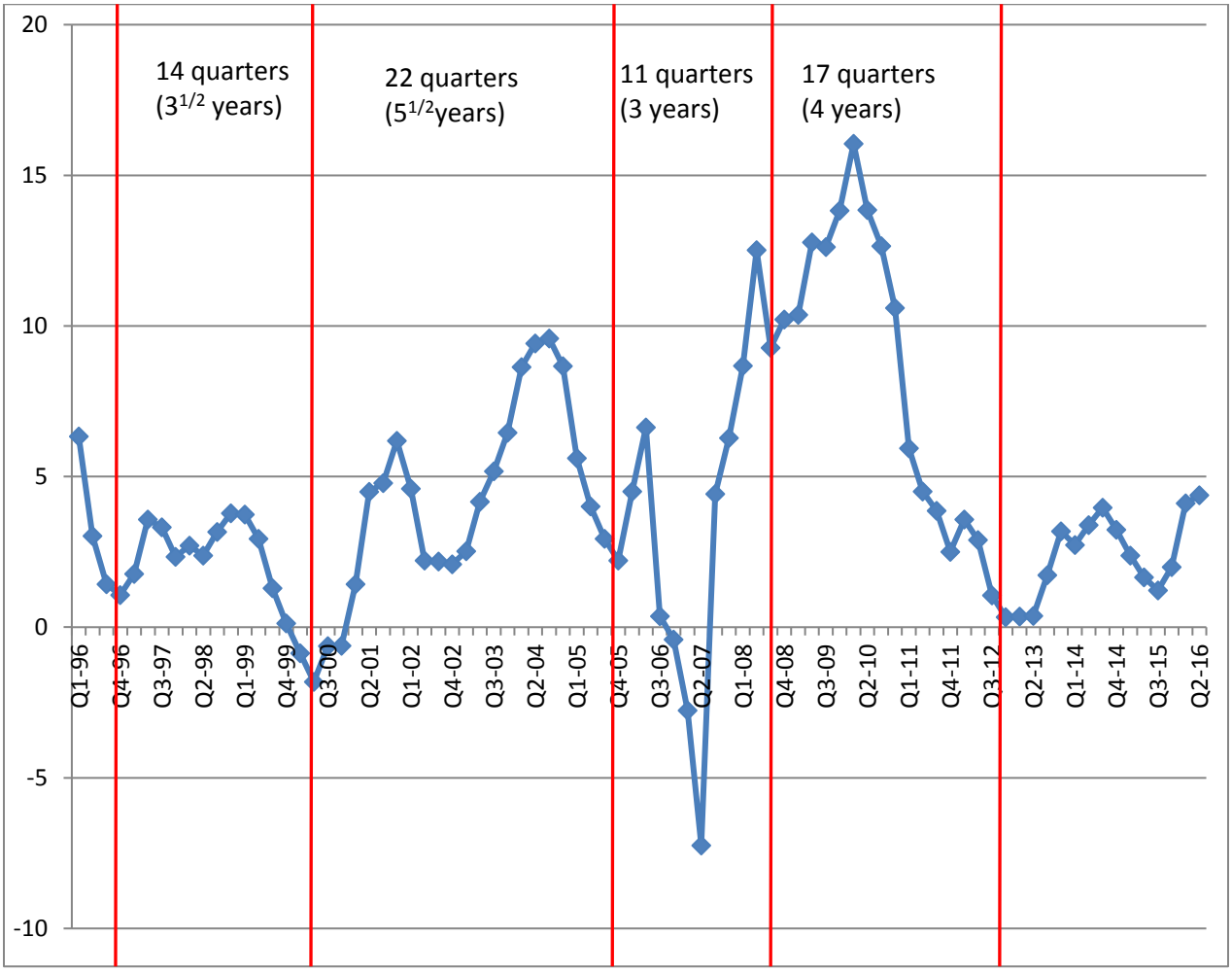
Table 1. Assumptions for the quarterly Bry & Boschan procedure

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"

III- Lebanese cycles: 1994-2016

Figure 2.BDL Coincident indicator evolution: 1994-2016



Source: Banque du Liban, own calculations

Table 2. Business cycle duration

Business cycles- Reference dates (quarterly dates)		Duration in Months		
Turning points Peaks	Turning points Troughs	Cycle (from trough to trough)	Expansion (Trough to peak)	Contraction (Trough from previous peak)
Q4-98	Q4-96	42	24	
Q3-04	Q2-00	66	51	18
Q2-08	Q4-05	33	30	15
Q1-10	Q3-08	51	18	3
	Q4-12			33
Average duration in years		4 years	2 years and a half	1 year and a half

Q4 1998- Q2 2000: Recession, duration 18 months

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 stagnation in the year 2000. 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 and an increase in indirect taxes.

Q2 2000- Q3 2004: Recovery& expansion, duration 51 months

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

Q3 2004-Q4 2005: Slowdown, duration 15 months

The assassination of Prime Minister Rafic Hariri and all the political and security troubles in 2005 had put a term to this growth. 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.

Q4 2005- Q2 2007: political turmoil and instability

In this period, political turmoil and July 2006 war had harmful effects on the Lebanese infrastructure and consequently on the economic growth. This recession had reached its lowest point with a negative growth rate. These exogenous and unexpected factors had biased the Lebanese economic cycle.

Q3 2008- Q1 2010: Revival& Strong growth, duration 18 months

After the political crisis paralyzing the public institutions over a period of one year and a half, 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.

In contrast with some Gulf, European and Asiatic countries, Lebanon had solid regulatory framework which isolated its markets from negative effects of the international financial crisis.

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 provide loan incentives intended to bring down the cost of borrowing (Both lending rates in USD and LBP were brought down from 8%- 12%% to 1%- 5%). These loans have contributed to a remarkable growth and activity revival in the industry and construction field.

The BDL coincident indicator clearly captured this revival: its annual growth had reached historical values during this period.

Q1 2010- Q3 2012: Recession, duration 33 months

Since mid-2010, the conflict in Syria and the region had severe and negative impact on the Lebanese economy. Spillovers from Syria and regional turmoil had been particularly pronounced in the trade and tourism sectors. Moreover, the rising demand for public services stemming from the large refugee influx had damaged Lebanon's public finance.

Since Q3 2012:

Following a sharp drop in 2011, Lebanese growth has registered low levels averaging 2% since 2012 due to the instable political and economic environment as well as the vacancy in the presidency since May 2014. Lebanon's traditional growth drivers—tourism, real estate, and construction—have received a significant blow, Inflation also declined sharply in 2014 on the back of lower oil prices. The overall picture and growth estimates are still gloomy and under the potential.

By monitoring the evolution of the BDL coincident indicator during the last twenty years, the different phases and turning points of the Lebanese business cycles are detected and summarized as follows:

- There were nine turning points consisting of five troughs and four peaks.
- The minimum duration of the Lebanese cycle is three years and the maximum is five years. The average duration of the cycle is four years.
- The average length of expansion periods is two years and a half and the average length of recession periods is one year and a half.

- Since 2005, exogenous factors (war and political turmoil) are affecting the regularity of the Lebanese cycles.

Lebanese cycles could be attributed to Kitchin inventory cycle of forty months with an M shape. As shown by its name, it is a short cycle due an excess supply or accumulated inventories. When the Supply becomes greater than the Demand, prices dropped and stocks appear, this will reduce the production (recession period). After this decrease takes place, we can observe a new phase of growth of Demand, prices and output (expansion), etc.

IV- Conclusion

This paper presents an attempt to monitor and analyse Lebanese business cycles in the lack of regular national accounts data. The BDL coincident indicator has been proved a sound tool for this purpose and the results showed that between 1994 and 2016 the average duration of lebanese cylcles is four years and could be attributed to Kitchin inventory cycle of forty months with an M shape.

The results are close to the cycles attributed to small developing countries with an open market economy; the average duration of business cycles in developing countries is three years while in industrialized ones between six and eight years. The overall picture of Lebanese business cycles will be clearer with longer series and less exogenous and unpredictable factors.

V- References

- Martin P. Everts, "Duration of Business Cycles", paper presented at a seminar at the University of Bern, Department of Economics, January 2006.
- Burns Arthur F. and Mitchell Wesley C. "Measuring Business Cycles", NBER, 1946.
- Kose Ayhan M., Otrok Christopher and Prasad Eswar, "Cycles économiques: découplage ou convergence?", Finances & Development, article inspiré du document de travail à paraître du FMI, intitulé "Global Business Cycles: Convergence or Decoupling?", 2008.
- Jean Jacques Granelle, "Les cycles économiques : présentation et analyse", Université Paris XII Val- de- Marne, Constructif, sommaire no. 6, novembre 2003.

Irving Fisher Committee on
Central Bank Statistics

BANK FOR INTERNATIONAL SETTLEMENTS

Eighth IFC Conference on *"Statistical implications of the new financial landscape"*

Basel, 8–9 September 2016

Monitoring business cycles in Lebanon: Is economic growth cyclical?[1]

Sana Souaid Jad,
Central Bank of Lebanon

[1] This presentation was prepared for the meeting. The views expressed are those of the author and do not necessarily reflect the views of the BIS, the IFC or the central banks and other institutions represented at the meeting.

Monitoring business cycles in Lebanon: Is economic growth cyclical?

Sana Souaid Jad, Phd

Head of Economic Research Division
Economic Research Department
Banque du Liban

8th IFC Biennial Conference
8-9 September 2016

Problem statement

- This paper focuses on the Banque du Liban coincident indicator and the possibility to explore this composite indicator to explain short-run economic fluctuations and business cycles in Lebanon.

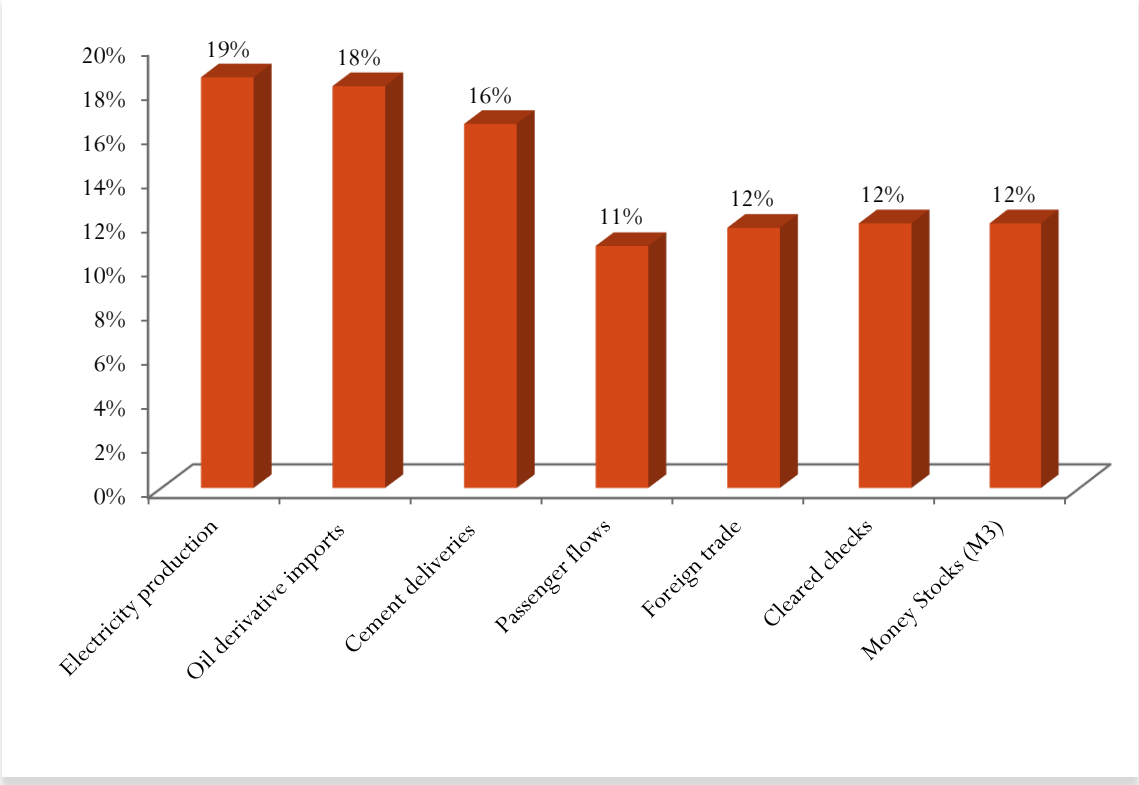
- The different phases of Lebanese expansions and recessions with their respective downturns and upturns durations for the period 1993-2016 are presented in this study

BDL coincident indicator

- The BDL adopted in 1994 a composite indicator named "Coincident Indicator" which is a monthly approximation to the GDP

- The CI is computed based on quantitative variables covering the main sectors of the economy, as weighed according to their importance in the GDP, and has consequently a similar performance to economic activity

Main components



BDL Coincident indicator and GDP

- The BDL Coincident Indicator is strongly correlated with real GDP growth as shown by the national account. The econometric relationship between these two variables is the following:

$$\frac{\Delta GDP}{GDP} = 0.8 \frac{\Delta IND}{IND}$$

Reliability and coherence

- Some variables in the business survey (such as Industrial Production, Demand and Sales) have similar performance to the coincident indicator and their coincident character has been proved and tested over years

- Over the past years, it has been proved that CI trend gives an accurate estimate of GDP

- The BDL Coincident Indicator remains a reliable proxy of economic growth in Lebanon

Methodology

- First, the monthly BDL Coincident indicator is transformed into quarterly data
- Second, the quarter-to-quarter growth of the BDL coincident indicator is calculated
- Finally, the cycles in a three–quarter moving average are identified.

Assumptions for the quarterly Bry & Boschan procedure

A peak (trough) must be followed by a trough (peak)

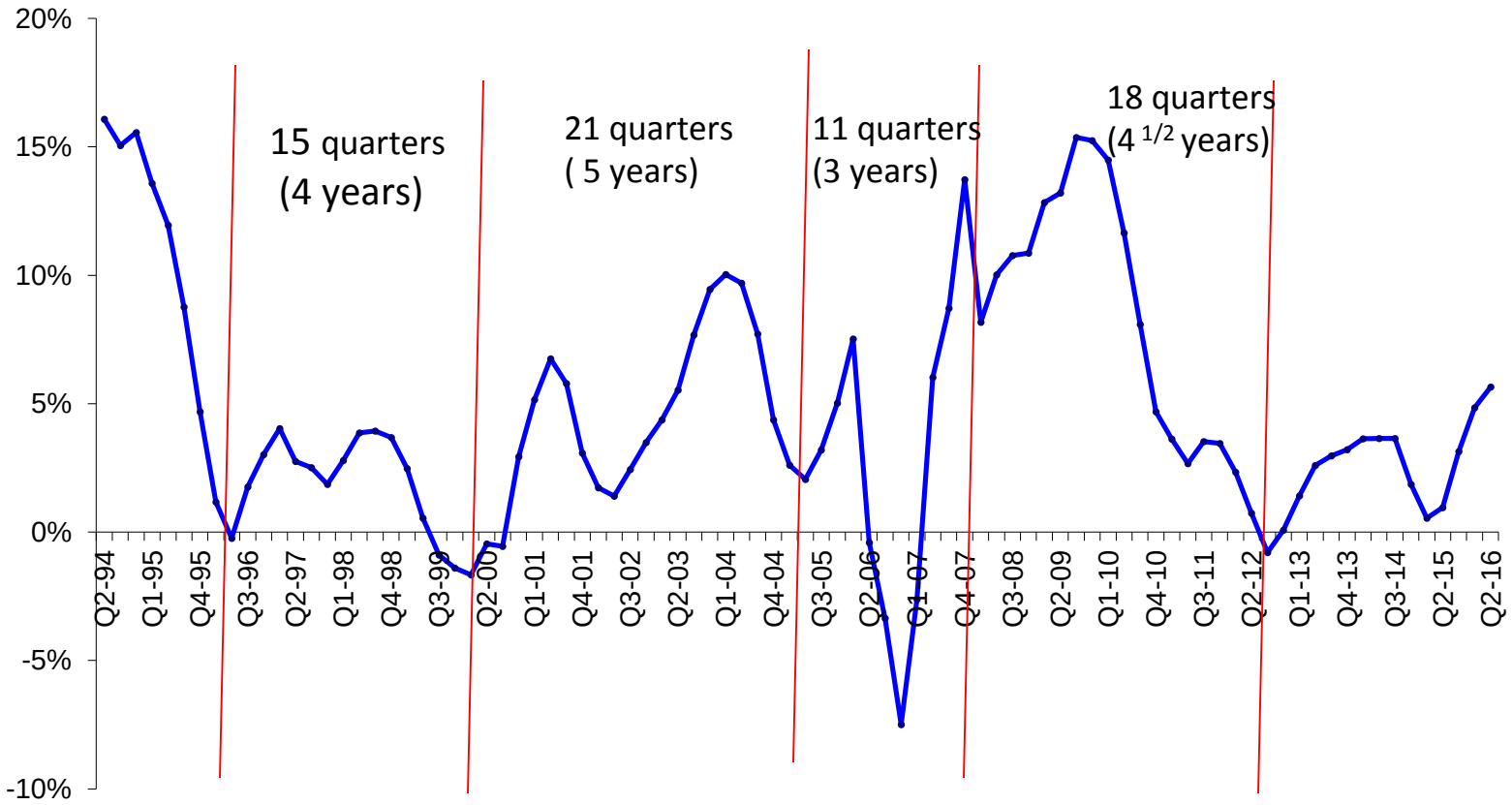
A cycle (from peak to peak or from trough to trough) must have a duration of at least 5 quarters

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

BDL Coincident indicator evolution: 1994-2016



Business cycle duration

Business cycles- Reference dates (quarterly dates)		Duration in Months		
Turning points Peaks	Turning points Troughs	Cycle (from trough to trough)	Expansion (Trough to peak)	Contraction (Trough from previous peak)
Q3-98	Q2-96	45	27	18
Q1-04	Q1-00	63	48	15
Q4-07	Q2-05	33	30	3
Q4-09	Q1-08	54	21	33
	Q3-12			
Average duration in years		4 years	2 years and a half	1 year and a half

Business cycle analysis

- By monitoring the evolution of the BDL coincident indicator during the last twenty years, the different phases and turning points of the Lebanese business cycles are detected and summarized as follows:
- There were nine turning points consisting of five troughs and four peaks.
- The minimum duration of the Lebanese cycle is three years and the maximum is five years. The average duration of the cycle is four years (Kitchin cycle).
- The average length of expansion periods is two years and a half and the average length of recession periods is one year and a half.
- Since 2005, exogenous factors (war and political turmoil) are affecting Lebanese cycles.

Conclusion and Limitations

- Small countries with an open market economy, such as Lebanon, differ considerably from industrialized ones in the nature and characteristics of short-run macroeconomic fluctuations. Cycles are generally shorter.
- The average duration of business cycles in developing countries is three years while in industrialized ones between six and eight years.
- Based on their four years average duration, Lebanese cycles could be attributed to Kitchin inventory cycle of forty months.
- The overall picture of Lebanese business cycles will be clearer with longer series and less exogenous and unpredictable factors.

Thank you