

# CONFIDENCE INDICATORS, THEIR INFORMATION CONTENT AND SYNCHRONIZATION WITH EU COUNTRIES

ERMELINDA KRISTO \*

## ABSTRACT

*Monitoring and analyzing the economic situation is a key process in monetary policy decision-making. A vast number of statistical indicators are considered during this process. This paper introduces the confidence indicators currently used at the Bank of Albania and the main uses of the information they contain. It also introduces two new uses: the study of the business cycle phases and the extent of synchronization between this cycle in Albania and other European Union countries.*

*\* Monetary Policy Department, December 2010.*

*The views expressed in this publication are the views of the authors and do not necessarily reflect the views of the Bank of Albania.*

## I. WHAT ARE CONFIDENCE INDICATORS (CIs)?

Data from business and consumer confidence surveys form part of the broad range of information available on the performance of economic activity and its short-term prospects. They provide in-depth information on various aspects of business economic activity and consumer behaviour. On a broader setting, survey data are used to measure less tangible concepts: economic “confidence”, “sentiment” or “tendency”. Although it is impossible to measure “confidence” quantitatively, it may be proxied through direct qualitative questions to business managers and households. These questions aim at measuring different aspects of businesses and households’ economic life. Theoretically, respondents have established an “opinion” or “confidence” prior to making decisions that have economic consequences (e.g. expansion of production activity, hiring of new employees, the acceptance of new order contracts, etc.). In addition, if consumers feel “more optimistic”, they will consume more thus increasing aggregate demand.

The information collected in confidence surveys is often described as qualitative, because respondents are asked to respond to questions on different aspects of the business life or consumer behaviour through an opinion, and assessing each aspect qualitatively rather than quantitatively. For example, in a business survey related to the performance of orders during the current quarter, the respondents might be asked to assign qualities such as “higher than normal”, “normal” or “below normal”. In a conventional quantitative industry survey, on the other hand, respondents may be asked to give quantitative information about their order books, such as the actual value of outstanding orders. It is generally much easier for respondents to give

qualitative rather than quantitative information (the former does not require respondents to consult their balance sheet statements or order contracts), hence the questionnaires can be filled in quickly. This is one of the main advantages of confidence surveys. Questionnaires for consumer surveys differ from those applicable to business surveys, however, they generally provide only qualitative information<sup>1</sup>.

Business and consumer surveys date back in the history. Consumer confidence survey was introduced about 60 years ago by the University of Michigan and it is known as the Consumer Sentiment Index<sup>2</sup>. Business confidence survey has a history dating from the 1920s and it was carried out by trade associations<sup>3</sup>. Central banks have been carrying out confidence surveys for some years as they need information on the current economic situation that is more up to date. An important development in confidence surveys in the recent years has been the harmonization of questionnaires with the survey methodology<sup>4</sup>. This allows the comparison of information from surveys among different countries. The information from surveys at the Bank of Albania is constructed based on the information obtained from 700 businesses and 1200 consumers. Çeliku and Shtylla<sup>5</sup> (2007) and Lama and Istrefi<sup>6</sup> (2007) provide in-depth information on the methodology of sampling, the construction of questionnaires and other characteristics of the data obtained from business and consumer confidence surveys.

The construction of questionnaires across many countries is very much alike. Surveys involve company managers and households. Their responses in general are characterized as “positive”, “no change” and “negative”. The “net balance” is calculated for each response, where the percentage of negative responses is subtracted from the percentage of positive responses. In cases when the response to a question consists in five categories, two positive, two negative and the one neutral, the response is weighed. The responses “highly positive” and “highly negative” are assigned double of the weight of “positive” and “negative” responses. The balances calculated as described above lose the information obtained from “no change” responses. Some countries include this option in calculating the balance. However, the added information in this case is inconsiderable compared to the balance estimated simply as the difference between positive and negative responses. The percentage of “no change” responses is often used to proxy companies’ and households’ uncertainty about different aspects. In the case of Albania,

<sup>1</sup> An exception to this rule is the question on capacity utilization, which requires companies to provide a numerical assessment, and the question on expected inflation after one year, which requires companies and consumers to choose between the quantitative intervals.

<sup>2</sup> Information on surveys, University of Michigan: <http://www.sca.isr.umich.edu/documents.php?c=i>

<sup>3</sup> OECD (2003): “Business tendency surveys: A handbook”.

<sup>4</sup> More concretely, CIRET (Centre for International Research on Economic Tendency Surveys), the European Union and OECD work together in designing and promoting the harmonized survey system and expanding it to transition and emerging countries.

<sup>5</sup> Çeliku and Shtylla (2007): “Vrojtimi i besimit të biznesit: aspekte metodologjike dhe analizë ekonomike e rezultateve”.

<sup>6</sup> Lama and Istrefi (2007): “Besimi konsumator dhe ekonomia shqiptare. Një urë e re informacioni”.

we note that there is higher uncertainty about those questions that require a degree of judgement on the future and lower uncertainty about those questions that require an assessment of the current situation. At a sector-level, the sector of industry shows the highest level of percentages of “no change” responses, while the sector of construction the lowest.

Balance values range from -100 to +100. A value above 0 shows a greater number of positive than negative responses in a given quarter. The larger in absolute value the bigger is the difference. For example, a balance of +10 pp shows that the number of positive responses is 10 pp higher than the number of negative responses. However, a given balance value in a given time does not imply much unless we compare it with its history over time. This is particularly important in cases of questions that receive repetitive pessimistic or optimistic responses. For example, consumer survey balances have historically marked negative values, while business expectations for the coming quarter are characterized by greater optimism than the current quarter assessment. Therefore, the balance results in a given quarter are not compared to 0 but to their historical average.

In order to better understand the performance of a given sector or the entire economy and to facilitate the analysis, the information obtained from the surveys is integrated into aggregated indicators called confidence indicators (CIs). CIs are time series that consist of several components. They aim at aggregating different economic agents' confidence, sentiment and expectations into a single indicator. By doing so, the analysis of a given sector is facilitated. CIs provide a more general overview for each sector or for the entire economy. The graphical presentation (see Chart 1) is a first step to understanding the information content of CIs. The four confidence indicators are incorporated in the same chart with the real GDP changes. Qualitative indicators obtained from surveys show a similar performance as the changes in the quantitative indicator of the economy, hence implying that they have the tendency to increase or decrease at the same time (for more information refer to part III).

CIs have some features that make them appropriate for economic analyses. Their main advantage is timely availability. CIs are available at the bank two weeks following the reference quarter, while official statistics are available after two or three months. Another advantage of CIs is that they do not require revision. Official data are generally revised periodically. Another characteristic of survey data, as will be shown below, is the high level of harmonization, which allows the comparison across different countries. In addition to these advantages, CIs have some other characteristics that make them more useful for economic analysis. CIs do not have trends, they are less volatile than quantitative information and they change more gradually. On the other hand, the greatest disadvantage of CIs is that they become invalid once official quantitative statistics are released. CIs are mainly used to signal the tendency or possible turning points of the economy faster; however, they cannot substitute the information obtained from quantitative official statistics.

## II. HOW ARE CIs CURRENTLY USED AT THE BANK OF ALBANIA CONSTRUCTED?

The main purpose in the construction of CIs is to aggregate the collected information and provide the performance of different sectors of the economy in one single indicator. Currently, CIs at the Bank of Albania are constructed as the arithmetic average of seasonally adjusted balances of responses to those questions that result to be more closely related to the reference indicator. The latter is a quantitative series obtained from official statistics. Generally, the quarterly GDP is the ideal option as it summarizes the main developments in the economy into an aggregated and well-known indicator. The construction of CIs aims at providing as much as closer approximation to the reference series, or better preceding its changes. Based on the business and consumer confidence surveys have been constructed aggregated indicators for industry, construction, services and consumers<sup>7</sup>. Their construction goes through the following phases:

1. Selection of the reference series;
2. Selection of balances forming the CIs;
3. Seasonal adjustment, normalization; and
4. Aggregation in the form of CIs.

The first two phases, the selection of the reference series and the balances to be used for the CIs by sector, are applied only at the first moment of the construction of indicators. Once these two phases terminate, the selected balances are used for the construction of the aggregated indicators and they do not change from one period to another. However, the balances forming the CIs may be revised in different time periods. For example, Services Confidence Indicator was revised in December 2010 in order to reflect the changes in the real GDP series (see Table 1). In the third phase, which is repeated once new information obtained from the last survey is made available, the balances of each question are seasonally adjusted (excluding the Consumer Confidence Survey<sup>8</sup>). The fourth phase deals with the construction of CIs as the simple arithmetic average of seasonally adjusted balances. The balances used for the construction of the CIs by sector are later normalized and used for the construction of the Economic Sentiment Indicator (ESI). The ESI is calculated as the weighted average of seasonally adjusted and normalized balances by each of the four sectors. At the end, it is made sure that the ESI has an average value of 100 and a standard deviation of 10.

<sup>7</sup> For more information on the methodology used for the construction of CIs, see *Methodological Explanatory Notes at the Bank of Albania's website*: [http://www.bankofalbania.org/web/pub/metodologjia\\_vbb\\_vbk\\_anglisht\\_2426\\_1.pdf](http://www.bankofalbania.org/web/pub/metodologjia_vbb_vbk_anglisht_2426_1.pdf)

<sup>8</sup> The graphical presentation and the tests show that seasonal adjustment is not necessary for the consumer survey balance series.

Table 1 : CIs balances

Confidence Indicator	Constituent balances, assessment for the current quarter, unless otherwise stated	Constituent balances (reassessed in September 2010)
- Industrial Confidence Indicator (ICI)	-Production -Employment -Inventories (opposite sign)	-Production -Employment -Inventories (opposite sign)
- Construction Confidence Indicator (BCI)	-Demand -Production -Employment	-Demand -Production -Employment
- Services Confidence Indicator (SCI)	-Employment -Firm's economic activity -Firm's financial situation	-Performance of the economy -Firm's economic activity -Firm's financial situation
- Consumer Confidence Indicator (CCI)	-Financial situation_expectations -Economic situation_expectations -Major purchases -Spending and savings	-Financial situation_expectations -Economic situation_expectations -Major purchases -Spending and savings

### III. WHAT ARE CIs USED FOR?

The data obtained from the confidence surveys are used at the Bank of Albania to monitor the economy at an earlier time than the release of official statistics and to make short-term forecasts of the GDP. Survey data are the first indicators to give a general overview of the real economy prior to the release of official statistics. CIs constructed from the surveys held with businesses and consumers have been used for several years by the Bank of Albania to monitor the short-term developments of the economy. They became available to researchers, businesses and other institutions starting from the beginning of 2009. New data are released at the Bank of Albania's website 45 calendar days following the reference quarter<sup>9</sup>. A summary analysis of the latest survey results is also released along with the update of the time series. The preliminary data obtained from surveys become valid for forecasts and internal use at the Bank 30 days following the reference quarter. Quarterly GDP data are released 90 days following the reference quarter.

In addition to their timeliness, survey data tend to be less volatile than the quantitative statistics. This derives from the nature of information underlying opinion survey data<sup>10</sup>. Opinions collected from surveys change gradually, while the quantitative statistics reflect factors like the climate conditions, holidays, etc. Another advantage of survey data lies in the high level of harmonization, which allows for comparative analysis across different countries<sup>11</sup>.

Timeliness and the foregoing features make the data obtained from confidence surveys very useful for conjunctural analysis. However, their use would bring added value if the information brought by the CIs timely precedes the economic developments. To achieve this, comparative analyses of the

<sup>9</sup> As from Q1 2011 survey, the new data will be made available at the Bank of Albania's website 15 days following the end of the reference quarter at:

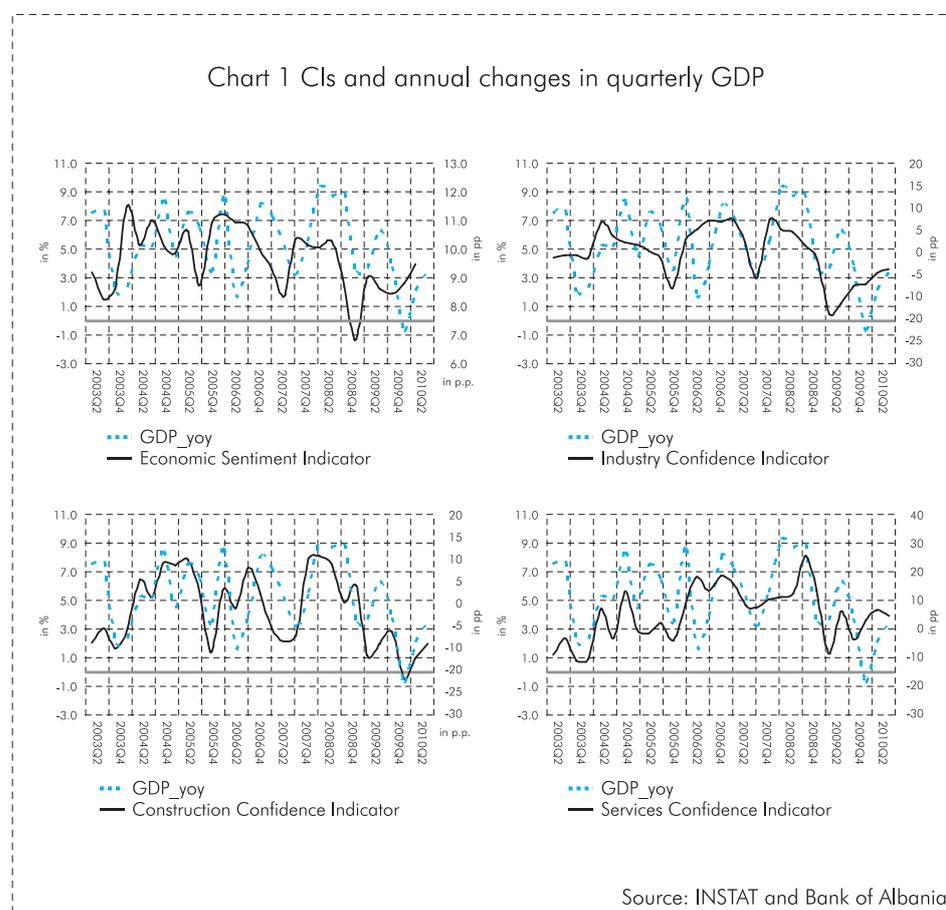
[http://www.bankofalbania.org/web/Business\\_and\\_consumers\\_survey\\_5310\\_2.php](http://www.bankofalbania.org/web/Business_and_consumers_survey_5310_2.php)

<sup>10</sup> ECB (2004); "Opinion surveys on activity, prices and labor market developments in the euro area: features and uses", January 2004 Monthly Bulletin.

<sup>11</sup> European Commission (2006): "The joint harmonized EU programme of business and consumer surveys", Special Report No. 5.

survey data and quantitative statistics are frequently made. Chart 1 provides a rough idea about the information provided by the CIs regarding the economic developments. Graphically, the changes in the CIs are positively correlated with the real GDP changes. Table 2 provides the same information but more analytically through the results of the linear correlation analysis.

The correlation analysis and the graphical presentation show that the CIs are more closely related to the annual real GDP changes than to the quarterly changes. In fact, the Consumer Confidence Indicator is excluded from this consideration as it shows no correlation with the real GDP<sup>12</sup>. The absolute value of the linear correlation coefficients between the CIs and the annual GDP changes is generally larger than the one between the CIs and the quarterly GDP changes. The conclusions of this analysis match with the conclusions derived from similar analyses carried out by European Union countries. Due to their higher volatility, quarterly GDP changes are reflected less by confidence indicators, which tend to change their trend more gradually. Therefore, the focus is placed on the annual changes (ECB 2001). According to Nilsson (2001) and OECD (1997), survey data seem to describe longer developments than as specified in the questionnaire. Hence, the annual real GDP changes are not only used as a reference series in the construction of the CIs, but also in the analysis of the business cycle. To analyse the latter, the long-term trend and the irregular movements are eliminated from the series.



<sup>12</sup> This phenomenon is observed in a number of countries.

Given that the quarterly changes are dominated by the short-term component, the annual changes become the optimal choice for this type of analysis.

	GDP_annual changes	GDP_quarterly changes
ESI	0.53	0.38
ICI	0.44	0.31
BCI	0.64	0.51
SCI	0.47	0.22
CCI	0.21	0.01

Table 2:  
Correlation  
between CIs and  
GDP, annual and  
quarterly changes

Source: Bank of Albania and author's own estimations

Table 3 shows the values of the linear correlation between the CIs and the real GDP at different lags. Looking at the results, it seems that the CIs are mostly simultaneous with the developments in the GDP. In the case of the BCI and ESI, it results that these indicators also have preceding features of 1 and 2-quarter lag, respectively. However, even when the CIs do not lead the developments in the real GDP, they are useful for conjunctural analyses as they are available about 2 months earlier than the first release of quarterly GDP.

Lag	t-2	t-1	t	t+1	t+2
ESI	-0.31	0.11	0.53	0.35	0.42
ICI	-0.29	0.13	0.44	0.34	0.20
BCI	-0.14	0.14	0.64	0.49	0.06
SCI	-0.16	0.20	0.47	-0.05	0.32

Table 3:  
Correlation  
between CIs and  
GDP

Note: The correlation coefficients are shown in the form of  $CI(t-lag)$  and GDP (annual changes). The values in bold show the maximum coefficients for each CI.

Source: Bank of Albania and author's own estimations

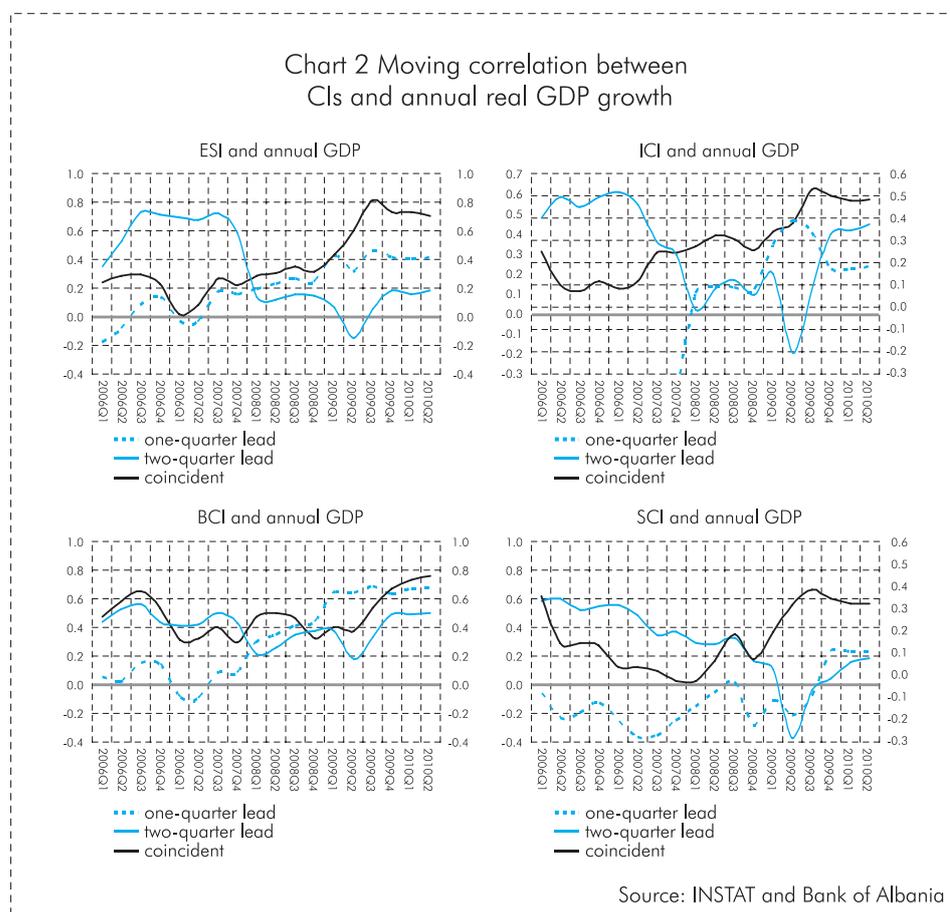
In order to see how the correlation between the CIs and the developments in the real GDP has changed over the time, we have applied the moving correlation coefficient technique. This analysis enables us to investigate the consistency of the correlation over the time. Chart 2 shows the correlation between the CIs and the annual GDP changes for a moving period of 12 quarters of 2003-2010. The correlation between the CIs and the real GDP changes was proved coincidently, at 1 and 2-quarter lag. As shown in the Chart, the moving correlation coefficients for the coincident period generally prevail over the coefficients for the lag periods, hence supporting the conclusions derived from the correlation coefficient results in Table 3. They are also more consistent over the time. However, the relationship is generally more stable starting from the first quarter of 2009.

In addition to the linear correlation analysis (see the Appendix), Table 6 shows the Granger Causality Test results. This test determines whether the past values of the CIs help forecast the actual values of the reference series, in our case the annual real GDP changes. The test has been applied on both directions, that is, whether the CIs cause the GDP changes, and vice-versa, whether the GDP causes the CIs' behaviour. The results show that the CIs for industry, construction and services Granger-cause the changes in the reference series, and not the opposite. The test for the Consumer Confidence Indicator (CCI) does not reject the basic hypothesis that the CCI does not Granger-cause the quarterly GDP.

In addition to the conjunctural analysis, CIs and the disaggregated survey data have been used at the Bank of Albania to forecast the real GDP growth starting from 2009. The incorporation of survey data into the explanatory equations of the quarterly GDP has improved their explanatory and forecasting ability<sup>13</sup>.

Survey data are also used to obtain information that helps understand certain behaviours of economic agents over different time periods. Specific sections in the surveys provide information regarding different aspects of business and consumer behaviour. This information is also used to assess the impact of different events on economic development, such as the impact of the global financial crisis.

Lastly, this material (Sections 4 and 5) uses survey data to study the business cycles in Albania and its synchronization with the European Union countries.



#### IV. CIs AND THE STUDY OF BUSINESS CYCLES

Burns and Mitchell (1946) were the first to provide the definition of the business cycle. They define the business cycle as a type of fluctuation found

<sup>13</sup> Çeliku et al. (2009): "Modelling the quarterly GDP. Role of Economic and Surveys Indicators", Working Paper.

in the economic activity of a nation. According to them, a cycle consists of an expansion phase, which occurs at about the same time in many economic activities, followed by similarly general recessions, contractions, and revivals, which merge into the expansion phase of the next cycle. The authors suggest that the business cycles last from one year and a half to 10 years. This definition, used in almost all the later studies on the business cycles, implies similar cyclical behaviours of many series, like production indices, price indices, employment, national account series, imports, confidence indicators, etc.

The purpose of this section is to construct a composite indicator using data obtained from the business confidence surveys, which will go through the four business cycles. One of the survey data characteristics, in addition to earlier availability, is that they do not have a long-term trend. This makes them more favourable to analyze the business cycle<sup>14</sup>. The time series obtained from these series have been used in many OECD countries also because the information collected from them, expressed in the form of opinions, makes them more sensitive to cyclical developments<sup>15</sup>. Another reason for using the information obtained from confidence surveys to determine the business cycles and the turning points is the definition of “confidence” or “tendency” as a special source of shocks to the economy; the change in business or consumer confidence may lead to changes in their production or consumption-related decisions. This reason is particularly important in the context of the global economic crisis and the sharp decline in business and consumer confidence. Business and consumer confidence was considered as a crucial factor in the transmission of financial shocks to economic activity<sup>16</sup>.

The following describes the construction of the Economic Climate Tracer (ECT), derived from the business confidence surveys and based on the European Commission’s methodology<sup>17</sup>. This indicator is quite similar to Economic Sentiment Indicator (ESI) as it collects information from the confidence surveys of the four main groups, industry, construction, services and consumers. However, in contrast to the ESI, the ECT uses the information obtained from all the questions of the questionnaires, not only those whose balances have the highest correlation with the reference series. In this sense, the ECT is a broader indicator than the ESI. The main purpose of the ECT is to obtain a simple visual overview of the four business cycle phases. Figure 1 provides a schematic presentation of what the ECT would look like throughout the four business cycle phases. The standardized level of the indicator is placed on the vertical axis, and its quarterly changes on the horizontal axis. This positioning in the chart enables the counter-clockwise movement. The chart also allows us to see the performance of the indicator and its changes over the time. This indicator goes through the following four phases:

<sup>14</sup> European Commission (2006): “The Joint Harmonized EU Programme of Business and Consumer Surveys”, Special Report No. 5.

<sup>15</sup> OECD (1997): “Cyclical indicators and business tendency surveys”.

<sup>16</sup> Weyerstrass, et al. (2009): “Business cycle and economic sentiment synchronization in the EU”.

<sup>17</sup> Gayer, C. “Report: The economic climate tracer. A tool to visualize the cyclical stance of the economy using survey data”.

1. Expansion (upper-right), the indicator is above average and increasing;
2. Downswing (upper-left), the indicator is above average but decreasing;
3. Contraction (lower-left), the indicator is below average and decreasing;
4. Upswing (lower-right), the indicator is below average and increasing.

The indicator, which rotates counter-clockwise in all the four phases, provides a simple and clear identification method of the business cycle. The business cycle peaks emerge as positions in the upper centre, while troughs are positioned in the lower centre.

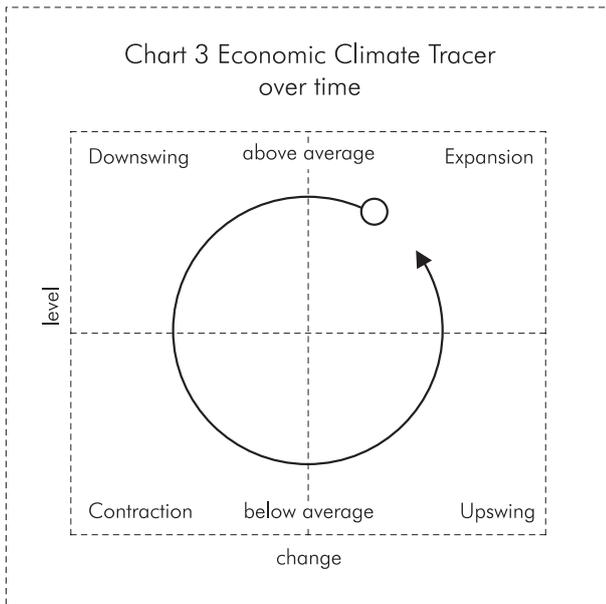
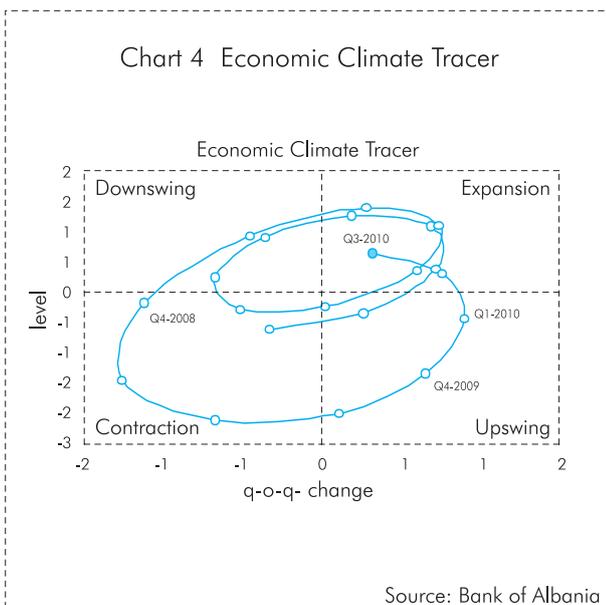


Chart 3 shows the real cyclical movement of the Economic Climate Tracer (ECT) for Albania, while Chart 6 in the Appendix shows the climate indicators for individual sectors of the economy. The climate indicators for each sector are based on the principal component analysis of the balance series of each sector, seasonally-adjusted. For the industry sector have been used 7 balances, for the construction sector 7 balances, for the services sector 5 balances and for consumers 10 balances<sup>18</sup>. The principal component is filtered and standardized in order to eliminate irregular movements and reach a common mean of 0 and standard deviation of 1. The ECT is a weighted average of the five principal component-based sector climate indicators. The chart shows clearly that following the boom in 2007 and 2008, all indicators are downward. The ECT peaked in

the second quarter of 2008 and after four quarters in recession crossed the turning point in the third quarter of 2009. This represents the trough of the business cycle. The changes in the ECT are positive during the last three quarters and it stands above the average. ECT by sector shows that confidence in industry and consumer confidence have been at the upswing phase for several quarters. The climate indicator for industry stands above its historical average in the third quarter of 2010 and very close to the previous quarter's level. The climate indicator for services crossed over its historical average in the third quarter of 2010. The performance of the climate indicator for the sector of construction shows more pessimistic levels; after approaching its average in the second quarter of 2010, its climate indicator changed to negative levels in the third quarter, thus entering the recession phase.



Source: Bank of Albania

The ECT is used to provide a preliminary orientation of the level of confidence in economy.

<sup>18</sup> The first principal component explains 85% of the variance for the sector of industry, 68% for the sector of construction, 55% for the sector of services and 57% for consumers.

Its added value consists in the fact that it provides faster information than the release of quantitative data. It has two advantages over the other aggregated indicator for the economy, Economic Sentiment Indicator (ESI); the first is that the ECT uses all the possible information obtained from the business and consumer confidence surveys, that is not only the information of some selected balances, as is the case with the ESI; the second is that the ECT conveys the information through a clear schematic view, where it can be easily identified the business cycle phase the economy is suggested to be in. However, the change of the methodology for the construction of the ECT versus the ESI causes the information derived from it to be sometimes different from the one derived from the ESI. In addition, the ECT may signal possible turning points in the economy but this information does not substitute the one obtained from quantitative statistics. The turning points are only confirmed by official data.

## V. SYNCHRONIZATION WITH THE EUROPEAN UNION COUNTRIES

The analysis of the extent of the business cycle synchronization across different countries is one of the uses of the information obtained from CIs. In general, the studies on the business cycle synchronization use information provided by the GDP or industrial production. However, the economic sentiment synchronization is relevant for the decision-making as shocks to confidence are considered an independent source of macroeconomic volatilities in the EU countries<sup>19</sup>. The study conducted by the European Commission on the use of business and consumer confidence survey results for the European Union countries concludes that the Industrial Confidence Indicator of the member states is more closely related to the movements in Europe's production index than to their own countries' cycles<sup>20</sup>. The study concludes that there is a common European component in the industrial confidence indicators of the member states.

Against this setting, it would be of interest to analyze whether these shocks or fluctuations in Albania's "sentiment" or "optimism" synchronize with other European countries. We first make a graphical presentation of the confidence indicators for each individual sector in Albania, Italy, Greece and the Euro area. At first view, confidence indicators in Albania (Chart 5 in the text and Chart 9 in the Appendix) show a considerable extent of synchronization with other countries. The similarity is more evident with Italy's confidence indicators. The rationale behind this synchronization may be the closer economic and trade relations with Italy. Closer economic and trade relations cause the changes in confidence to be more similar as a shock to or improvement of confidence in one economy would be transmitted to the other economy. The chart shows clearly the fall of confidence in all the sectors of the economy at the end of 2008 as a response to the global economic and financial crisis. Economic

<sup>19</sup> Weyerstrass, K. et al. (2009), "Business cycle and economic sentiment synchronization in the EU".

<sup>20</sup> Weyerstrass, K. et al. (2009), page 46.

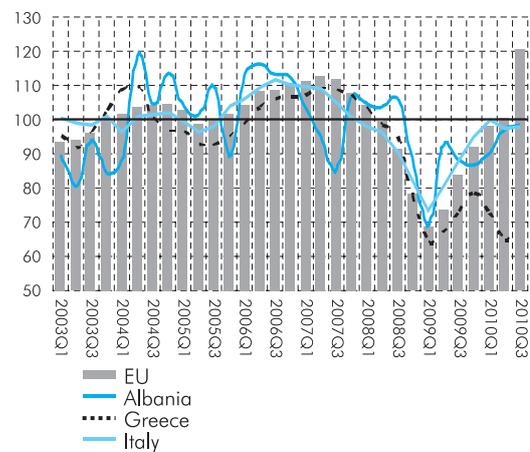
Sentiment Indicator reached the trough starting from the first quarter of 2009. After confirming the turning point in the second quarter of 2009, this indicator began to improve, except for Greece's ESI, which declined in the first two quarters of 2010. Industrial Confidence Indicator shows the most pronounced improvement in the last four quarters, triggered by the revival of demand as a result of the gradual recovery of global economic growth. Confidence in the other sectors shows less uniform developments.

The graphical presentation and the analysis of linear correlation for the period under analysis (2002:Q2-2010:Q3) show that the developments in the ESI and CIs for industry, construction and services in Albania are positively correlated with the developments in the respective indicators of EU, Italy and Greece. By contrast, the developments in the Albanian consumer confidence indicator are poorly correlated with those of other countries. The rationale behind this fact is that consumer opinion and confidence are affected by specific events in each individual country. CIs in the sector of industry show the closest correlation coefficients, ranging between 0.77 (Greece) and 0.76 (Italy). The common performance of industrial confidence indicators relates to the common factors that affect this sector and the closer trade relations between these countries. The opinions of industry-related businesses are affected similarly by external shocks (e.g. rise in primary commodity prices, fall of demand due to the global crisis, etc.). The sector of services shows the least strong correlation among the sectors of the economy. The linear correlation coefficients range from 0.48 with Italy and 0.54 with Greece. Services-related businesses are affected more by specific factors characterizing the country they operate in rather than by common shocks to their sentiment. Construction confidence indicator in Albania shows some strong positive correlation with the CI in EU and Italy (the correlation coefficients is 0.58 and 0.52, respectively), but it shows no correlation with Greece's CI.

In conclusion, the industrial confidence indicator shows the strongest synchronization. Given their export-oriented nature, sales in industry depend largely on foreign demand. The Albanian construction sector also shows good levels of synchronization with the EU countries. The reasons behind this synchronization are the characteristics of the Albanian housing market and the high level of raw material imports. Money remitted from Albanian expatriates residing in EU countries represents a vital source of the purchasing power of residential buildings in Albania; a large number of Albanian expatriates are employed in the sector of construction. The lack of synchronization in the sector of services may be explained by the non-tradable nature of goods this sector produces. Tourism, which may establish a stronger correlation between the countries, is characterized by low demand elasticity in the case of Albania. Foreign demand to spend vacations in Albania is mostly determined by Albanian travellers who reside abroad and visit their relatives in Albania, regardless of their economic conditions. Similarly, the synchronization of consumer confidence indicators is low as their confidence is affected by specific factors characterizing individual countries.

It is difficult to compare the business cycles by the CIs in Chart 5 due to the short-term fluctuations of the series. This is more evident in Albania's CIs. In order to better compare the information provided by the CIs for the identification of the business cycles we apply the methodology used by Weyerstrass et al. (2009). The authors state that the business cycle cannot be observed without preliminary assumptions about its characteristics. The very short-term fluctuations in the series in the charts make it less easy to identify the business cycle. In general, the series consist of three components: very short-term fluctuations in the series, or the irregular component; very long-term fluctuations, or the trend; and the medium-term fluctuations, or the cycle component. Hence, in order to observe the cyclical component in a series, we have to eliminate the long and short-term component. In order to eliminate the irregular component in the CI series, we applied the Christiano-Fitzgerald (CF) filter. It enables the elimination of the trend and the irregular component, while preserving the business cycle component. By applying the CF filter on the series, we eliminate the fluctuations shorter than 6 quarters and longer than 32 quarters, and preserve the fluctuations occurring between the interval of 6-32 quarters.

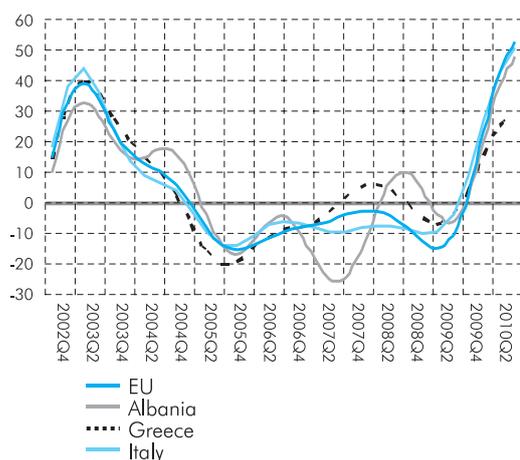
Chart 5 Economic Sentiment Indicator in Albania and EU countries



Source: Bank of Albania and European Commission

Chart 6 below and Chart 10 in the Appendix show the cyclical components of the Economic Sentiment Indicator and the CIs for each individual sector for the four countries under analysis. The charts show more clearly the considerable extent of synchronization of confidence in different sectors of the economy. Excluding the BCI between Albania and Greece, the cyclical component shows the best synchronization between Albania's and EU's CIs. In order to obtain more detailed information on the correlation between the CIs, we need to analyze the lags as well. The table showing the correlation coefficients (see Table 4) provides us with this information. The correlation coefficients are calculated for different time periods, but the table shows only those coefficients that resulted with the highest correlation. The results show that the CIs between Albania and EU countries generally reach the strongest correlation after 1 or 2 quarters. Otherwise said, the developments in the confidence of EU countries precede the developments in the Albanian business confidence with 1 or 2 quarters.

Chart 6 Cyclical component of Economic Sentiment Indicator



Source: Bank of Albania and European Commission

The synchronization of the business confidence cycles has become stronger in the last two years, a period that corresponds to the last economic crisis. Chart 8 shows the moving correlation coefficients for a 4-year period of the CF filter between the Albanian CIs and EU, Greece and Italy's CIs. The Economic Sentiment Indicator shows a low level of synchronization during 2007-2008, following a 2-year period of high synchronization. At present, the correlation of the Economic Sentiment Indicator between Albania and other countries has been increasing. The chart showing consumer and construction confidence indicators provides a similar setting. The Albanian construction confidence indicator shows no relevant correlation for the prior-2009 period. Industrial confidence indicator shows by large the most stable correlation over the time, while the services confidence indicator shows the weakest correlation.

Table 4 Correlation between CIs in Albania and other countries

	ESI	ESI_CF filter	ICI	ICI_CF filter	BCI	BCI_CF filter	SCI	SCI_filter	CCI	CCI_CF filter
EU	0.53 (-1)	0.88	0.75 (-1)	0.84 (-1)	0.58 (-2)	0.63 (-2)	0.49 (-2)	0.64 (-2)	0.27	0.77
Greece	0.45 (-1)	0.82	0.77 (-1)	0.84 (-1)	0.11	0.09	0.54 (-2)	0.59 (-1)	-0.1	0.68
Italy	0.40 (-1)	0.89	0.76 (-1)	0.88 (-1)	0.52 (-1)	0.71 (-1)	0.48 (-1)	0.52 (-1)	0.09	0.89

Source: Bank of Albania and author's own estimations

## CONCLUSIONS

The analysis of confidence indicators plays a key role in the pool of information scrutinized during the monetary policy decision-making. They have provided very useful information at the Bank of Albania and have helped in the process of analysis and short-term forecast of quarterly real GDP. Given the advantages characterizing the confidence indicators: timely availability, lack of revision and stationarity, they may also be used to identify the business cycle phase the Albanian economy is in. This paper introduced the Economic Climate Tracer, whose graphical presentation provides a simple view of the business cycle for the economy and its main sectors. By comparing the information obtained from the confidence indicators of Albania and some EU countries, we concluded that there is considerable synchronization between Albania and EU countries.

## REFERENCES

- Burns dhe Mitchell (1946): "Measuring Business Cycles", NBER.
- Çeliku and Shtylla (2007): "Vrojtimi i besimit të biznesit: aspekte metodologjike dhe analizë ekonomike e rezultateve".
- Çeliku et. al (2009): "Modelling the quarterly GDP. Role of Economic and Surveys Indicators", Working Paper.
- ECB (2001),: "The information content of composite indicators of the euro area business cycle", November Bulletin.
- ECB (2004); "Opinion surveys on activity, prices and labor market developments in the euro area: features and uses", January 2004 Monthly Bulletin.
- Gayer, C. "Report: The economic climate tracer. A tool to visualize the cyclical stance of the economy using survey data".
- University of Michigan, information on surveys: <http://www.sca.isr.umich.edu/documents.php?c=i>
- Lama and Istrefi (2007): "Besimi konsumator dhe ekonomia shqiptare. Një urë e re informacioni", Bank of Albania Paper.
- Nilsson (2001), "Business tendency surveys: methodology, analytical use and presentation of results".
- OECD (1997): "Cyclical indicators and business tendency surveys".
- OECD (2003): "Business tendency surveys: A handbook".
- European Commission (2006): "The Joint Harmonized EU Programme of Business and Consumer Surveys", Special Report No. 5.
- Santero and Westerlund (1996): "Confidence indicators and their relationship to changes in economic activity", OECD, WP Nr. 170.
- Weyerstrass, K. et. al. (2009), "Business cycle and economic sentiment synchronization in the EU".

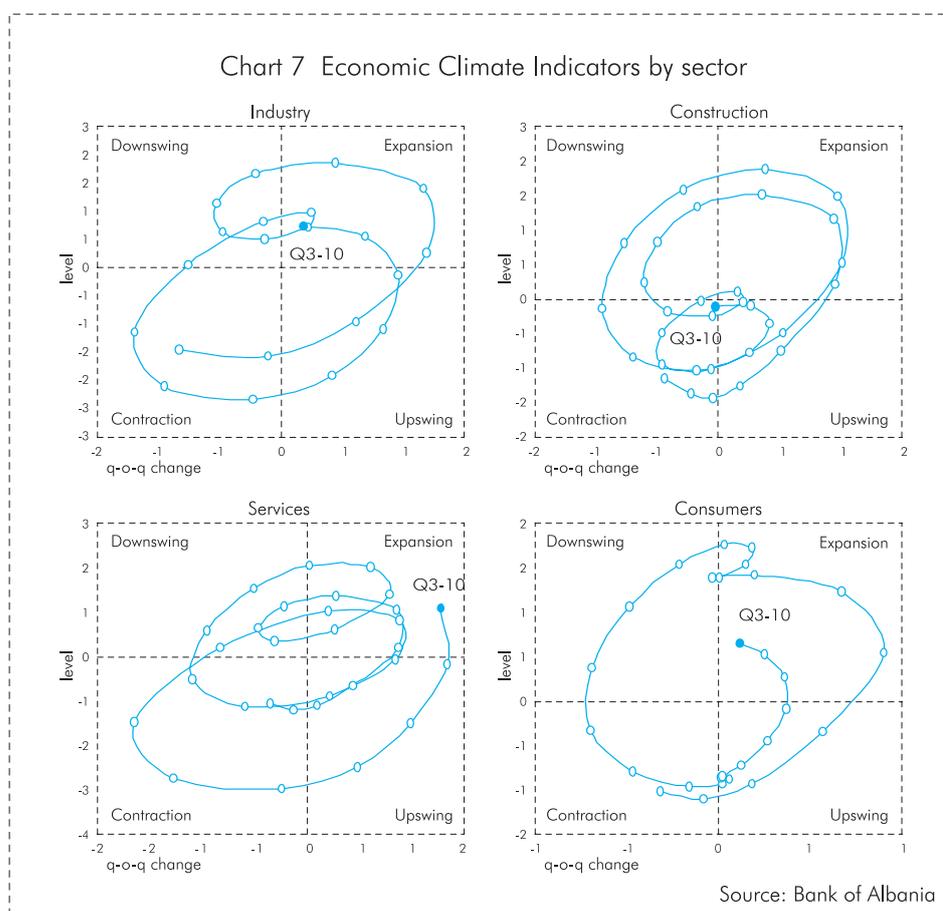
APPENDIX:

Table 5  
Correlation  
between CIs and  
GDP, y-o-y and  
q-o-q changes

		GDP_y-o-y	GDP_q-o-q
Industry	Production	0.37	0.28
	Inventories	-0.25	-0.03
	Employment	0.51	0.31
Construction	Demand	0.66	0.48
	Production	0.67	0.46
	Employment	0.65	0.5
Services	Performance of economy	0.34	0.22
	Economic activity	0.44	0.23
	Financial situation	0.47	0.19

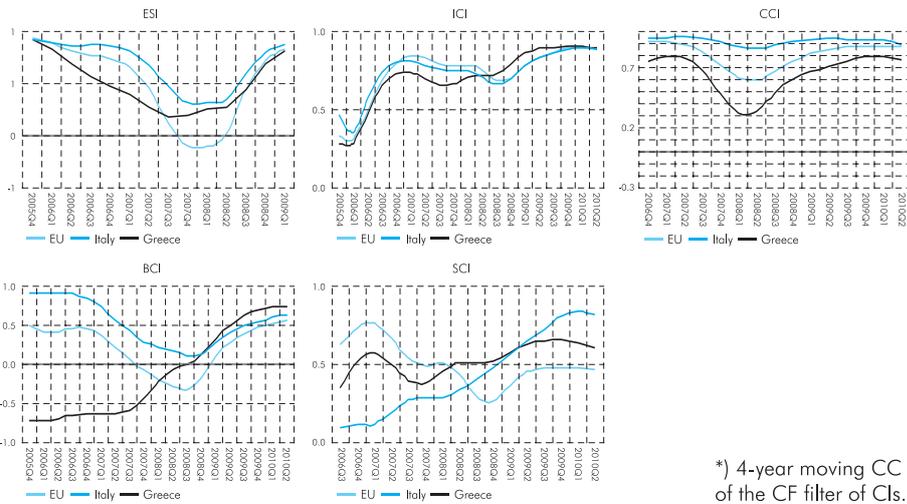
Table 6  
Granger-  
Granger  
Causality Test  
results for CIs  
and GDP

	Probability	Basic hypothesis is rejected	Opposite test <sup>21</sup>
Basic hypothesis: CIs do not Granger-cause the GDP, y-o-y changes			
ICI	0.0273	Yes	No
BCI	0.0103	Yes	No
SCI	0.0779	Yes	No
CCI	0.9596	No	No
Basic hypothesis: CIs do not Granger-cause the GDP, q-o-q changes			
ICI	0.2674	No	No
BCI	0.2841	No	No
SCI	0.6223	No	No
CCI	0.6341	No	No



<sup>21</sup> Basic hypothesis: GDP does not Granger-cause the CIs.

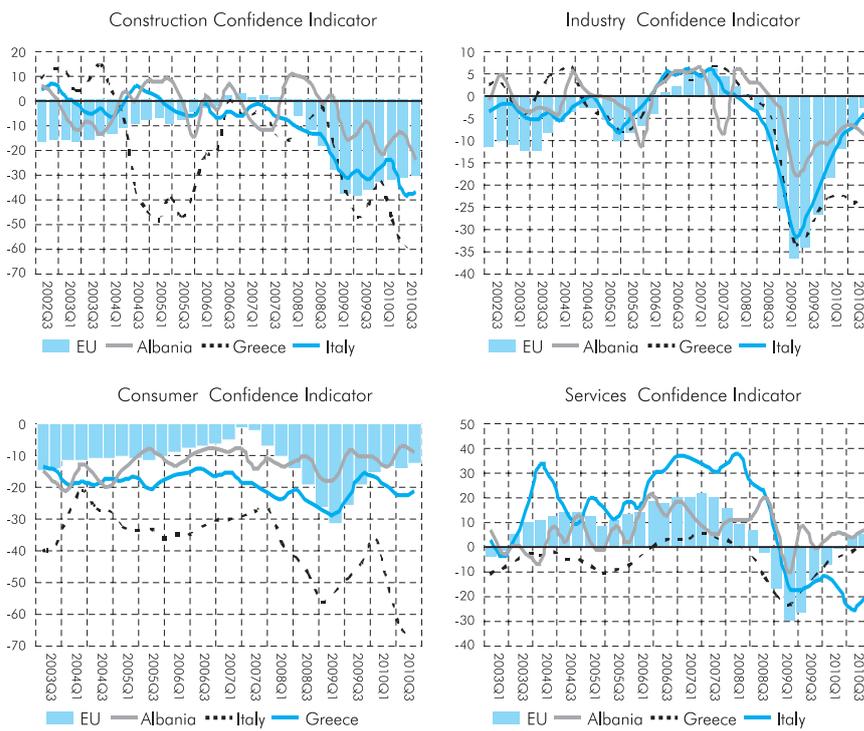
Chart 8 Moving correlation between CIs\*



\*) 4-year moving CC of the CF filter of CIs.

Source: Bank of Albania and European Commission

Chart 9 CIs in Albania and EU countries



Source: Bank of Albania and European Commission

Chart 10 Cyclical components of CIs

