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BUSINESS CYCLE SYNCHRONIZATION:
A MEDITERRANEAN COMPARISON

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Abstract

Nowadays, due to the world economic regionalization, business cycle synchronization is of great importance. It is in this context that this study is defined. Indeed, following the political debates carried out especially by France in order to create a Mediterranean Union, we propose a synchronism estimation between the Tunisian, French, Italian, Spanish, Greek and Turkish industrial cycles. Several methods were used to measure the business cycles synchronization among these countries. In fact, concordance index indicates a weaker convergence between the two Mediterranean sides. Consequently, the cycles are, in general, asynchronous and the creation of a Mediterranean Union is not encouraged.

ملخص

لقد أصبح لتزامن دورات العمل أهمية كبرى هذه الأيام بسبب الألفية الاقتصادية العالمية, و قد تحددت هذه الدراسة في هذا السياق. بعد متابعة المناقشات السياسية، خاصة التي أجرتها فرنسا من أجل إنشاء اتحاد متوسطي، نقترح القيام بتقدير التزامن بين الدورات الصناعية في كل من تونس و فرنسا و ايطاليا و اسبانيا و اليونان و تركيا. ولقد استخدمت عدة أساليب لقياس التزامن دورات العمل بين هذه الدول. ولكن مؤشر التوافق بين جانبي المتوسط يميل إلي الضعف. و بالتالي، فإن دورات العمل في هذه الدول بوجه عام غير متزامنة و لا تشجع علي إنشاء اتحاد متوسطي.

1. Introduction

It is worth noting that the level of business cycle synchronization can provide adequate information on the necessity of independent fiscal and monetary policy, on the impact of regional union and on agreement benefits. One aspect of association agreement between countries is that the business cycles become more similar and internal and external shocks are common. On the other hand, if shocks are country specific, then the ability to conduct an independent monetary and fiscal policy is usually regarded as being an important factor in helping an economy adjust to a new equilibrium.

Nowadays, frequent political debates have highlighted the importance of a Mediterranean union and more and more interest is accorded to the next steps conceived to found the future of this Union. Yet, due to the discrepancies existing between the two sides of the Mediterranean area, policymakers don't seem to adopt or have the same viewpoints regarding this union. Some are for the union, while others—among which are the policymakers of developed countries— have criticized this Union. In fact, the major objective of this Union has been to enforce the economic relationship and bilateral trade among countries in order to reach converging economies. Indeed, the aim behind obtaining convergence in the Mediterranean economies is encouraging bilateral trade transactions through which these countries would become more and more similar. This is likely to allow the harmonization of policies across this region's countries and to facilitate joint decision taking. Yet, if integration does not bridge the existing gap between these countries in matters of business cycle position, decision-making might not be reached.

This paper is based on the classical business cycle synchronization framework, with the aim of verifying whether the association agreements of Barcelona 1995 agreed upon among the Mediterranean countries has lead to more harmonious correlated business cycles in the region. This work can be directly related to the more general political debate relevant to the Mediterranean Union and supported essentially by France.

Hence, if the region's countries business cycles are found similar, we can conclude that the union in the region is encouraged and sustainable. Inversely, if they are not, we may conclude that the Mediterranean Union is not optimal for countries of the region.

In fact, we have chosen to deal with this subject for several reasons. For instance, we can notice the importance of bilateral trade flowing within this region. In fact, the European countries are considered the most important partners for Southern Mediterranean countries (for example, bilateral trade flowing between Tunisia and European countries accounts for more than 70% of the global Tunisian trade). Hence, bilateral trade with European countries is considered one of the most promising activities in this region.

Our focus in this paper will concentrate mainly on the business cycle synchronization in the Mediterranean region. Essentially, we highlight the possible relationship existing among the cyclical patterns of industrial activity. The approach proposed in this work is based on the measure developed by Harding and Pagan (2004), who have constructed the concordance index to measure the degree of business cycle synchronization among countries. According to these authors, an index close to one between any two countries implies similar business cycles.

The present paper is divided into five sections. Following the introduction, section two is devoted to describing the level of agreement between Southern Mediterranean and EU countries. In section three, we present a brief description of the methodology used by Harding and Pagan to characterize the business cycle along with a brief description of the Markov switching models while proposing our modified version of the concordance index. Section four is devoted to the empirical application in which concordance index between six Mediterranean countries is calculated. Finally, section five provides the conclusion.

2. Association Agreement between Southern Mediterranean and EU Countries

Since the 1990s, many agreements have been concluded between Southern Mediterranean and EU countries. These agreements are aimed to reinforce bilateral trade, reduce tariff barriers and increase security in the region. In July 1995, the Southern Mediterranean countries concluded an association agreement with the EU in order to promote the bilateral trade policy between the two signing parts. In fact, the Barcelona Agreement is considered a continuous enhancing neighborhood policy that provides a confidential structure to bilateral transactions relationships in different fields. Three main objectives characterize the Barcelona Agreement:

- Economic and financial partnership that attempts to create equilibrium between countries through a sustainable socioeconomic development.
- Political and security partnership in order to maintain stabilization and establish peace in the region.
- Social, human and cultural partnership.

As we notice, such a project tends to strengthen cooperation between Southern Mediterranean and EU countries and to create a Euro-Mediterranean free trade zone by 2010. Accordingly, we estimate that if these agreements don't increase bilateral trade in the region, they will allow for consolidating the old traditional relationships between Southern Mediterranean and EU countries to face the competition rising from East European (especially after their adhesion to the EU community) and East Asian countries.

Similarly, due to weaker bilateral trade among Southern Mediterranean countries, these association agreements aim to look deeper into these relationships and resolve the social, political and economic conflicts between them, which negatively affect their partnership with the EU. In other word, South-South trade needs to be more developed following the relatively high petroleum products flow among them. In fact, South-South integration is considered the key element in the development of the region, leading to the convergence of the Mediterranean economies.

Table 1 and 2 show some statistics concerning South-South relationships. Despite all the Mediterranean countries, trade growth among them remains stable with a very low ratio of about 5%. In fact, the GAFTA¹ Agreement concluded in Amman in 1997 had a negative effect on the trade evolution of Southern and Eastern² Mediterranean countries and only encouraged trade between these Eastern countries and their Arab Gulf neighbors.

However, this agreement, among others, has decreased their trade transactions with the EU in recent years (see Annex 1, Tables 4 and 5).

In addition to this, it is our interest throughout this paper to depict the economic issue of partnership and its impact on the convergence or divergence between Southern Mediterranean and EU countries. Convergence of economies implies that countries share the same evolution or fluctuations of major economic indicators such as the Gross Domestic Product and the Industrial Production Index. In other words, when the countries' business cycles share the same movement and eventually exhibit the same periodicity within a certain range of time duration, there exists a high synchronization between cycles. Thus, we can conclude that agreement association has lead to an economic convergence in the region and that the Mediterranean Union is therefore encouraged.

¹ Greater Arab Free Trade Area.

² Eastern Mediterranean countries are also called Mashriq countries.

3. Measuring Business Cycle Synchronization

Various studies dealing with the issue of business cycle synchronization in different regions of the world have been presented in the literature. They were especially focused on developing countries and have reached different conclusions partly because of the differences in applied variables, and partly because of the diverging business cycle measures and methods used to assess synchronization.

For instance, Artis et al. (1997) found that the degree of concordance between business cycle dates for industrial production relative to the G7 and some European countries is high (near one), implying that the cycles are synchronous and that the evidence of existing regional cycles is found to be the strongest amongst North American and European economies. Bodman and Crosby (2000) also found evidence of synchronization of business cycles across the G7 countries.

In this section we focus mainly on studying the relationship existing among the cyclical patterns of the Mediterranean industrial activity. In particular, we apply some Mediterranean countries' industrial production index to explore their business cycle synchronization. Parametric and non-parametric measures of the business cycle synchronization were developed in the literature³. In this paper we use the concordance index developed by Harding and Pagan (2002), which is considered a parametric approach, to measure synchronization among the Mediterranean countries.

3.1 Concordance index

Concordance index is the fraction of time during which both countries in the comparison were in the same cycle phase (contraction or expansion). This index is clearly between 0 and 1. A high degree of concordance (value close to 1) indicates that business cycles of both countries are synchronized, while a value near 0 indicates non synchronous cycles⁴. Following Harding and Pagan (2002), we apply the formula below to measure the concordance index between two countries i and j :

$$C_{ij} = \frac{1}{T} \sum_{t=1}^T S_{ij} S_{jt} + (1 - S_{it})(1 - S_{jt})$$

Where,

$S_t = 0$ when the economy is in a recession phase and 1 when it is in an expansion phase.

S_t is a binary latent method which can be determined by applying several methods.

According to the literature review, we can use either parametric or non-parametric methods to construct the variable S_t . For the non-parametric method, we can consider the algorithm of Bry and Boschan (1971) which tends to localize the different phases of the series and then determine the variable S_t . We also use the Markov switching models as the parametric method to construct the variable S_t . The next section is dedicated to the presentation of Markov switching models.

3.2 Markov switching models

An array of techniques concerning non-linear time series have been used for modeling the different economic cycle characteristics as linear models could not capture the cyclical

³ As a non-parametric method to analyze business cycle synchronization, we use the correlation between the cyclical component of the series (we consider real economic activity variables such as GDP or industrial production index). Den Haan (2000) has used the correlations of the VAR forecast errors at different horizons as a measure of business cycle synchronization. Dynamic correlation in frequency domain was proposed by Forni, Reichlin and Croux (2001) to analyze synchronization between series. Beine, Candelon and Hecq (2000) use simultaneously common trends and common cycles, while Breitung and Candelon (2001) use a frequency domain common cycle test to analyze synchronization at different business cycle frequencies.

⁴ A concordance index score of 0.5 indicates no concordance between the two series.

asymmetries. Great interest has recently been generated for non-linear specifications through which we have depicted a significant distinction between expansion and recession phases. These models are so flexible that they allow taking into consideration the different specifications and relationships corresponding to each phase, as there are many extensions proposed in the literature. Among these non-linear models, there are the autoregressive threshold models (Tiao and Tsay, 1993), the SETAR models (Terasvirta and Anderson, 1992) and the regime switching models (Hamilton, 1989). In this paper, we will restrict our focus of study exclusively to the Markov switching models⁵. However, Markov switching models have been applied in various fields (economics, finance, biology, medicine, forecasting ...). They have been applied to economics and finance for analyzing the business cycle of the United States (Hamilton 1989), the business cycle characteristics of the Euro-zone (Krolzig, 1998), explaining the different features of the foreign exchange rates (Engel and Hamilton, 1990), stock market volatility (Hamilton and Susmel, 1994), etc.

Hamilton (1989) was a pioneer in developing the Markov switching model in order to capture business cycles in real GNP. He considered that the mean GNP growth rate switches between two states: the recession phase and the expansion phase. In other words, the Markov Switching model describing two states of the output growth y_t can be expressed as follows:

$$\Delta y_t = \mu_{S_t} \sum_{i=1}^a \phi_t (\Delta y_{t-i} - \mu_{S_{t-i}}) + \varepsilon_t$$

$$\begin{cases} \mu_1 & \text{if } S_t = 0 \\ \mu_2 & \text{if } S_t = 1 \end{cases}$$

Where μ_{S_t} represents the mean growth rate corresponding to the state S_t and ε_t represents the disturbance term that can be considered state dependent. S_t is the unobservable state that is governed by a first order Markov process with fixed transition probabilities expressed as follows:

$$P [S_t = 1 / S_{t-1} = 1] = p_{11}$$

$$P [S_t = 2 / S_{t-1} = 2] = p_{22}$$

And that satisfy: $\sum_j p_{ij} = 1$

Clements and Krolzig (2003), proved that the two regime switching models cannot capture the steepness business cycle asymmetry. For this reason, the three regime switching model has been developed. This implies that, theoretically, the model can be written as follows:

The economic interpretation of these three regimes is the following:

- A low growth regime: this regime is characterized by a negative growth rate, and is therefore associated with the classic recession phases.
- An intermediate growth regime or a regime of moderate expansion: for this phase, we suppose that the economic growth rate is below the trend associated to the growth rate (a weak phase of the growth cycle) without recession.
- A high growth or high expansion regime: for this regime, we suppose that the economic growth rate is above the trend associated to the growth rate (a strong phase of the growth cycles).

⁵ In fact, our ultimate objective is to analyze the business cycle synchronization. The Markov switching models are known for their empirical success in analyzing and dating turning points from which we construct the concordance index.

3.3 Modified concordance index

To analyze the business cycle synchronization, Harding and Pagan used the concordance index mentioned previously. This index was applied to the two phase business cycle (expansion and recession). For this reason, we propose, in this paper, a modified concordance index applied to the case of three phase business cycle. We also propose a concordance index applied to each phase of the business cycle taking into account the delay effect on the transmission of the internal and external shocks from one country to another. The modified concordance index is expressed as follows:

$$C_{ijk}(h) = \frac{1}{T-h} \sum_{t=1}^{T-h} S_{jk,t+h} + (1-S_{ik,t})(1-S_{jk,t+h})$$

Here, k is the business cycle phase (recession, expansion or high growth recovery phase) in countries i and j while h^6 is the delay that corresponds to the maximum value of correlation between the binary cycle phase indicator state variables $S_{ik,t}$ and $S_{jk,t+h}$.

4. Data and Empirical Results

4.1 Data

For our analysis, we use the industrial production index which is representative of the economic activity. We consider the following Mediterranean countries to measure synchronization in the region: France, Italy, Greece, Spain, Tunisia and Turkey. We consider monthly data that is seasonally adjusted and covers the period 1994:01 – 2007:12. We have chosen this period in order to test the effect of the association agreements of Barcelona 1995 among the Mediterranean countries on the business cycle synchronization and the convergence between the two sides of the region.

4.2 Results

First, we determine the turning points of the industrial production index for the selected countries⁷. To do this, we estimate the three regime switching model⁸ for each country and following the smoothing probabilities, we estimate the unobservable state variable S_t through which we can calculate the concordance index. We accord to the economic activity the regime j ($j = 1, 2, 3$) with the smoothed probability $P[S_t = j] > 0,5^9$. Then, we move on to calculate the concordance index. In order to prove the effect of delay in the analysis of business cycle synchronization, both the concordance index with no delay and the delay effect were considered in this work. Table 3 presents the empirical results.

The results of both concordance indexes as shown in Table 3, indicate that the degree of business cycle synchronization is high between the Northern Mediterranean countries (France, Italy and Spain). This is explained by the fact that these countries are members of the EU. We also notice that values of the concordance index increase when we consider the delay effect. This implies that there is a transmission of shocks among Mediterranean countries that differently vary in time from one country to another. This increase in the concordance index depicted on taking into account the delay effect implies that the transmission of external shocks among countries is an important feature in measuring the business cycle synchronization. We also notice that the shocks transmissions are not the same among the Mediterranean countries. These shocks are

⁶ Like in the analysis of leading indicators, we have chosen a maximum delay of about two years ($h=0, 1, 2, \dots, \pm 24$).

⁷ See Annex 2.

⁸ In testing the business cycle asymmetries, we found a steepness test asymmetry for all series. Then according to Clements and Krolzig (2003) we choose the three regime switching model to measure the degree of business cycle synchronization.

⁹ We mention that we have $P[S_t = 1] + P[S_t = 2] + P[S_t = 3] = 1$ and 1 corresponds to the recession phase, 2 to the expansion phase and 3 to the high growth recovery phase.

faster among the European countries (France, Italy and Spain) than among the Southern countries (Tunisia and Turkey) or among the Northern and Southern countries. The delay effect does not exceed 7 months between France, Italy and Spain for all regimes while it extends to about 19 months between Spain and Turkey when we calculate the modified concordance index corresponding to the third regime (high growth recovery phase).

Table 3 shows a weak synchronization between the cycles of the Southern and Northern Mediterranean countries and a strong synchronization between the European countries (France, Italy and Spain). For instance, we find a concordance index of about 0.54 between Tunisian and French industrial cycles during the recession phase (near 0.5 indicates a non-synchronization between the two series) and an index of about 0.89 between French and Italian industrial cycles. We also conclude that there was a downturn during the period 2001–2003 in every country, considering the global world recession of 2001 that resulted from the military action. This implies that the economy in these two rival sides is strongly related to the external crises and shocks (especially the negative ones), and that the Southern countries remain in a perpetual dependence on Europe. Moreover, this weak synchronization can be explained by some negative key economic indicators such as the high unemployment rate, the low rate of women's participation in job activities and the weak share of foreign direct investment in the Mediterranean countries as compared to the average emerging countries. Despite the free trade agreements concluded between the Mediterranean countries and EU, we notice that the fruits of these agreements and the results of openness and diversification have not been reached yet.

Finally, we end up by stressing that correlation and concordance indexes indicate a weak convergence between the two Mediterranean sides. Consequently, the cycles are generally asynchronous and the creation of a Mediterranean union is not to be encouraged.

5. Conclusion

In this paper we have analyzed the business cycle synchronization for a sample of six Mediterranean countries over the period 1993:1 – 2007:12 using both measures: the concordance index developed by Harding and Pagan (2002) and a modified concordance index that takes into account the delay effect in transmission of shocks from one country to another. We have applied the Markov switching regimes to estimate the smoothing probabilities for each regime and construct the binary cycle phase indicator state variable S_t .

By considering the seasonally adjusted industrial production, we concluded that there is a weak convergence between the Northern and the Southern Mediterranean countries. This implies that the association agreements of Barcelona 1995 between the Mediterranean countries have not lead to more correlated business cycles in the region and that creation of a Mediterranean union is not to be encouraged.

An interesting topic for future research would be to determine the relationship between trade intensity and business cycle synchronization in the Mediterranean countries by considering variables related to bilateral trade flows in the region.

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Table 1: Evolution of some Economic Indicators in the Mediterranean Countries

| Country | Growth Rate (% an. average) | | GDP PPP per Capita (in \$) | | |
|---------|-----------------------------|-----------|----------------------------|-------|-------|
| | 1995-2000 | 2000-2007 | 2000 | 2005 | 2008 |
| Algeria | 3,2 | 5,5 | 4463 | 7126 | 8067 |
| Egypt | 5,4 | 4,3 | 3360 | 4321 | 5429 |
| Jordan | 3,1 | 5,0 | 3803 | 4222 | 4957 |
| Morocco | 3,6 | 4,6 | 3606 | 3547 | 4345 |
| Tunisia | 5,6 | 4,8 | 6005 | 6558 | 8082 |
| Turkey | 3,9 | 4,4 | 6168 | 10728 | 12730 |
| PM | 3,6 | 4,4 | 4463 | 6558 | 8067 |

Source: EIU, June 2009.

Table2: Intra Mediterranean Trade

| Country | Exports (in %) | | | Exports+ Imports (in %) | | |
|---------|----------------|------|------|-------------------------|------|------|
| | 1990 | 1995 | 2007 | 1990 | 1995 | 2007 |
| Algeria | 3 | 6 | 5 | 3 | 6 | 7 |
| Egypt | 2 | 13 | 10 | 2 | 5 | 7 |
| Jordan | 7 | 10 | 14 | 6 | 9 | 13 |
| Morocco | 3 | 4 | 3 | 2 | 4 | 6 |
| Tunisia | 5 | 6 | 5 | 5 | 6 | 6 |
| Turkey | 6 | 7 | 2 | 4 | 5 | 2 |
| PM | 4 | 6 | 5 | 3 | 4 | 4 |

Source: Comtrade- N. Roux calculations

Table3: Concordance Index between Some Mediterranean Countries

| Regime 1: Recession Phase | | | | | | |
|---|---------------|---------------|--------------|--------------|----------------|---------------|
| | France | Greece | Italy | Spain | Tunisia | Turkey |
| France | 1 | 0.79(7) | 0.81(3) | 0.81(1) | 0.6(2) | 0.74(18) |
| Greece | 0.73 | 1 | 0.72(3) | 0.8(1) | 0.58(13) | 0.8(0) |
| Italy | 0.8 | 0.68 | 1 | 0.84(0) | 0.7(12) | 0.61(12) |
| Spain | 0.79 | 0.79 | 0.84 | 1 | 0.73(13) | 0.66(11) |
| Tunisia | 0.57 | 0.47 | 0.5 | 0.49 | 1 | 0.52(7) |
| Turkey | 0.59 | 0.8 | 0.45 | 0.57 | 0.44 | 1 |
| Regime 2: Expansion Phase | | | | | | |
| | France | Greece | Italy | Spain | Tunisia | Turkey |
| France | 1 | 0.65(9) | 0.87(0) | 0.83(1) | 0.62(10) | 0.64(16) |
| Greece | 0.53 | 1 | 0.53(2) | 0.63(1) | 0.56(5) | 0.51(7) |
| Italy | 0.87 | 0.49 | 1 | 0.78(1) | 0.66(2) | 0.67(1) |
| Spain | 0.81 | 0.61 | 0.76 | 1 | 0.66(13) | 0.6(17) |
| Tunisia | 0.62 | 0.29 | 0.65 | 0.61 | 1 | 0.58(6) |
| Turkey | 0.57 | 0.48 | 0.65 | 0.54 | 0.53 | 1 |
| Regime 3: High Growth Recovery Phase | | | | | | |
| | France | Greece | Italy | Spain | Tunisia | Turkey |
| France | 1 | 0.72(4) | 0.91(0) | 0.84(1) | 0.7(16) | 0.68(14) |
| Greece | 0.79 | 1 | 0.77(1) | 0.89(8) | 0.89(24) | 0.69(12) |
| Italy | 0.91 | 0.75 | 1 | 0.87(1) | 0.76(15) | 0.73(14) |
| Spain | 0.87 | 0.73 | 0.86 | 1 | 0.83(18) | 0.71(19) |
| Tunisia | 0.63 | 0.76 | 0.64 | 0.7 | 1 | 0.68(13) |
| Turkey | 0.62 | 0.61 | 0.68 | 0.65 | 0.63 | 1 |

Values in parentheses represent the number of delay effect in months.

Concordance index with delay effect is presented in the superior triangular matrix.

Concordance index with no delay effect is presented in the inferior triangular matrix.

Annex 1

Table 4: Trade between Partners in 2007 (in %)

| Countries | GAFTA | Mediterranean |
|-----------|-------|---------------|
| Algeria | 5,4 | 5,1 |
| Egypt | 18,8 | 6,6 |
| Jordan | 40,5 | 16,9 |
| Morocco | 10,7 | 5,8 |
| Tunisia | 10,5 | 5,6 |
| Turkey | 6,7 | 1,7 |
| PM | 8,4 | 4,4 |

Sources: World Bank, Comtrade, N. Rous calculations

Table 5: Trade Shares of Mediterranean Countries (in %)

| | | 1995 | 2007 |
|----------------|-------------------|------|------|
| Exports | UE | 50 | 34 |
| | Rest of the World | 44 | 61 |
| Imports | UE | 51 | 30 |
| | Rest of the World | 45 | 67 |

Sources: Comtrade, N. Rous calculations

Annex 2

Table 6: Turning Points Dating

| France | | |
|-----------------|-------------------------------|-------------------------|
| | Beginning of the Phase | End of the Phase |
| Regime 1 | 1995 :10 | 1996 :09 |
| | 2001 :07 | 2003 :09 |
| | 2005 :05 | 2005 :10 |
| Regime 2 | 1995 :05 | 1995 :09 |
| | 1997 :01 | 1997 :03 |
| | 1998 :10 | 1999 :08 |
| | 2001 :03 | 2001 :06 |
| | 2003 :10 | 2005 :04 |
| Regime 3 | 2005 :11 | 2007 :12 |
| | 1994 :04 | 1995 :04 |
| | 1997 :04 | 1998 :07 |
| | 1999 :09 | 2001 :02 |
| Greece | | |
| | Beginning of the Phase | End of the Phase |
| Regime 1 | 1999 :03 | 1999 :10 |
| | 2001 :03 | 2002 :12 |
| | 2005 :02 | 2005 :07 |
| Regime 2 | 1994 :01 | 1994 :01 |
| | 1999 :11 | 1999 :11 |
| | 2003 :01 | 2003 :01 |
| | 2005 :08 | 2005 :08 |
| Regime 3 | 1998 :01 | 1999 :02 |
| | 2000 :07 | 2001 :02 |
| Italy | | |
| | Beginning of the Phase | End of the Phase |
| Regime 1 | 1996 :02 | 1997 :01 |
| | 1998 :08 | 1999 :07 |
| | 2001 :06 | 2003 :11 |
| | 2004 :07 | 2005 :10 |
| | 2007 :10 | 2007 :12 |
| Regime 2 | 1995 :09 | 1996 :01 |
| | 1997 :02 | 1997 :03 |
| | 1999 :08 | 1999 :11 |
| | 2001 :03 | 2001 :05 |
| | 2003 :12 | 2004 :06 |
| Regime 3 | 2005 :11 | 2007 :09 |
| | 1994 :04 | 1995 :08 |
| | 1997 :04 | 1998 :03 |
| | 1999 :12 | 2001 :02 |
| Spain | | |
| | Beginning of the Phase | End of the Phase |
| Regime 1 | 1995 :11 | 1996 :12 |
| | 2001 :02 | 2003 :01 |
| | 2004 :10 | 2005 :09 |
| | 2007 :11 | 2007 :12 |
| Regime 2 | 1995 :07 | 1995 :10 |
| | 1997 :01 | 1997 :02 |
| | 1998 :07 | 2000 :01 |
| | 2000 :06 | 2001 :01 |
| | 2003 :02 | 2004 :09 |
| Regime 3 | 2005 :10 | 2007 :10 |
| | 1994 :01 | 1995 :06 |
| | 1997 :03 | 1998 :06 |
| | 2000 :02 | 2000 :05 |

Table 6: (continued)

| Tunisia | | |
|-----------------|-------------------------------|-------------------------|
| | Beginning of the Phase | End of the Phase |
| Regime 1 | 1994 :01 | 1995 :12 |
| | 1997 :04 | 1998 :01 |
| | 2001 :08 | 2003 :11 |
| | 2004 :04 | 2006 :10 |
| Regime 2 | 1998 :02 | 2001 :08 |
| | 2003 :12 | 2004 :03 |
| | 2007 :02 | 2007 :12 |
| Regime 3 | 1996 :01 | 1996 :12 |
| | 2006 :11 | 2007 :01 |
| Turkey | | |
| | Beginning of the Phase | End of the Phase |
| Regime 1 | 1994 :04 | 1995 :03 |
| | 1998 :09 | 1999 :11 |
| | 2001 :03 | 2002 :02 |
| Regime 2 | 1996 :02 | 1997 :01 |
| | 1998 :03 | 1998 :08 |
| | 2000 :01 | 2001 :02 |
| | 2004 :09 | 2007 :12 |
| Regime 3 | 1995 :04 | 1996 :01 |
| | 1997 :02 | 1998 :02 |
| | 2002 :03 | 2004 :08 |