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## Strategic Lessons from the Maastricht Criteria

By Friedrich Heinemann, Mannheim\*

### I. Introduction

After the start of the Euro it is time to draw lessons from the experience with the fiscal criteria in the EMU qualification process. These criteria have met heavy criticism in the economic analysis. A widely held view is that the limits of 3 percent for the deficit-GDP-ratio and of 60 percent for the debt-GDP-ratio are arbitrary numbers without economic foundation. It is argued that fulfilment of the criteria is neither a sufficient nor a necessary condition for a country group to form a monetary union. Thus the criteria are accused to restrict fiscal flexibility without economic justification. Consequently, the criteria are judged to have posed an unnecessary burden on the European economies (e.g. *Buiter et al.*, 1993, *McKay*, 1997).

Much of this criticism might be based on a too narrow economic approach because a major aspect of the criteria is neglected – the strategic dimension. Taking into account this dimension means to look how the fiscal criteria have modified the relative bargaining power of different players and thus have changed fiscal outcomes. Looking back at the period between 1991, the year when the Maastricht Treaty was negotiated, and 1997, the reference year for the qualification test, underlines the need for a better understanding of the strategic dimension. The years 1991 and 1997 mark a period of an impressive fiscal turnaround in EU countries: The average EU general government deficit declined from 4.3 to 2.3 per cent of GDP. The decline was larger for the cyclically adjusted deficit as calculated by the IMF which declined from 5.3 to 0.9 per cent. Even more impressive is the change of some single countries. In Italy the cyclical adjusted deficit fell by almost 10 percentage points from 11.0 to 1.3 per cent of GDP (all data from International Monetary Fund, 1998: 165–167).

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On the basis of a simple bargaining model and econometric evidence this study shows that these fiscal developments can not be appropriately explained without taking account of the strategic dimension. The criteria have changed the game that has been played within the EU in the last years over budget consolidation. Particularly in countries with a large public support for the Euro, governments were put into a position to succeed in consolidation. These insights are not without consequences for expectations on fiscal behaviour in the first years of EMU. After 11 countries have become EMU members, the convergence criteria do no longer serve as strategic instruments for budget consolidation. If the Pact for Stability and Growth does not lead to an equally powerful conditionality it must be expected that countries return to higher deficit levels.

The structure of the study is the following: In section II. the criteria are interpreted in the context of bargaining theory as boundaries. In section III. a simple bargaining game is presented which is helpful to improve the understanding for the effectiveness of the Maastricht criteria. After that econometric evidence for the strategic effectiveness of the criteria is presented (section IV.) before in the final section V. conclusions are drawn.

## II. The Fiscal Criteria as “Boundaries”

Flexibility can be bad. This is a central insight from bargaining theory. Committing oneself means strengthening one’s bargaining position relative to the other party. In negotiations “being able to make commitments while your opponent cannot means that you have much of the bargaining power. This is, in Thomas Schelling’s words, the paradox that the power to constrain an adversary depends upon the power to bind oneself.” (*McMillan*, 1992: 54) These statements might seem paradox because commitment is reducing flexibility of action. Flexibility, however, is not beneficial during negotiations: “It is good to have a wide range of choice over what position you are going to commit to. It is good to have flexibility before the negotiations begin, but to be inflexible during the negotiations.” (*McMillan*, 1992: 54)

A finance minister trying to impose tough budgetary cuts against the resistance of well organised interest groups will have a better chance of success if his determination is beyond doubt. In this respect it becomes clear that an analysis of the fiscal criteria not taking into account strategic issues is incomplete and misleading. It seems to be one of the most

important purposes of the convergence criteria to limit flexibility of agents in order to change the bargaining results of fiscal processes. A national finance minister whose determination had been far from credible in the past finds himself in a completely changed bargaining position vis-à-vis national voters after the introduction of the criteria.

The fiscal criteria are a typical example of a “boundary” (*Schelling*, 1960). A boundary is a sharply and unequivocally defined trigger point for a painful counter-reaction. In military conflicts it is usually defined geographically. One party pre-announces that if the enemy crosses a certain border there will be a heavy dose of retaliation. This example makes clear that the simple definition of the Maastricht criteria is a characteristic of a boundary. The pre-announced counter-reactions in the Maastricht context are the postponement of EMU and – in the context of the Pact for Stability and Growth – pecuniary fines. Interpreting the fiscal criteria as boundaries the reproach of arbitrariness is simply not relevant. Arbitrariness and a strong discontinuity of behaviour are normal characteristics of a boundary, not required is any scientific foundation.

For the function of a boundary, credibility is essential. It is not sufficient that a finance minister pre-announces sanctions in case a given target is not reached. This pre-announcement must be supplemented by proofs of a clear commitment. A typical way to commit oneself is to make a threat binding through handing the sanctioning over to a third party. In this respect in the Maastricht Treaty a standard commitment device has been applied by making the fiscal limits an external constraint backed by European law. Not the national government alone has to decide on sanctions but the institutions of the EU according to the rules of the Treaty.

In spite of this commitment it is obvious that the credibility of the EMU exclusion threat was not perfect. First of all the debt and deficit limits had a wide margin of interpretation – due to the clauses surrounding the precise numbers. Secondly, the decision on EMU membership was not completely external because the same politicians fighting for consolidation domestically decided on sanctions within their responsibilities in the EU council. Thirdly, there were risks associated with the sanction. If a country had not been allowed to enter EMU or if EMU had been postponed altogether this could have provoked financial market turbulences risking the whole project. If these risks had been estimated excessive the sanction threat would not have been credible. Stated in the game-theoretical terminology: In this case the strategy involving sanctions was not subgame-perfect.

In the following model these considerations will be analysed in a more formal but simple way. The purpose of this formalisation is to put more precision to concepts such as bargaining strength and credibility in the context of the criteria.

### III. The EMU Consolidation Game

The European process of public deficit determination in the years preceding EMU was characterised by one central difference from earlier times. While before Maastricht the determination of national deficits was exclusively in the realm of national actors, after Maastricht European actors like the European Council had an increasing influence.

The following simple setting seems sufficient to work out some strategic features of this pre-EMU situation: A national and a European player are negotiating over reduction of the national deficit. The national player is a country's median voter (*MV*), the European player the European Council (*EC*). Under the standard assumption of the median voter model (single-peakedness of preferences and two-party-system) a national government is forced to follow *MV*'s preferences in order to stay in power (Mueller, 1989). Assuming this to be valid it is therefore not necessary to differentiate in this simple approach between the national *MV* and the national government. *EC* as a European actor is, however, not directly politically dependent on the support of the national *MV*. Possible indirect dependencies working through a country's votes in the council are assumed to be non-existent. However, *EC* needs the support of the national *MV* in order to reduce national deficits as long as budgetary decisions are taken at the national level. This setting thus represents one out of fifteen games with identical structure but different parameters that had been played before EMU qualification in May 1998 between the Council and each EU member country.

It is easy to motivate that both players differ in regard to the preferred optimal deficit. The national *MV* will not take into account negative externalities from high deficits all over Europe while *EC* has a European perspective and tends to internalise negative cross border externalities. Therefore, *EC* tries to use the EMU process as an instrument to reduce national deficits. For that purpose he poses the following threat: Either *MV* accepts the consolidation that is compatible with a deficit of 3.0 per cent or EMU will be postponed. "Postponement" can have two different meanings: It can either stand for the case in which EMU starts on sche-

dule but the country in question misses qualification. Or it can stand for a postponement of the EMU project altogether. Because of the first interpretation, the postponement threat is not unrealistic a priori even if a postponement of EMU as a whole has never been possible.

There is complete information. All parameters are common knowledge to both players. The game has the following sequential structure:

**Step A:** *MV* has to move: Either he accepts or rejects consolidation. If he accepts, the game is over and consolidation has been achieved.

**Step B:** If *MV* rejects consolidation, *EC* has the next move. Either he gives in and EMU starts without consolidation or he sticks to his pre-announcement and postpones EMU.

**Step C:** If EMU is postponed, “nature” moves and with a probability  $\theta$  EMU fails permanently and the game is over without EMU and without consolidation. With the probability  $(1 - \theta)$  the game will go on and after a delay of one period it restarts at *A*.

“Nature’s” move in step *C* can be interpreted as the reaction of international financial markets to a postponement decision. If a postponement leads to massive turbulences on foreign exchange and bond markets this could mean EMU’s failure for the foreseeable future. This extension reflects an important element of the debate that dealt with the question whether any delay of EMU was ever a realistic possibility.

Payoffs for all possible outcomes for both players are given in the following table with  $\kappa, \lambda, \tau \geq 0$ .

Table 1

**Payoffs**

|           | EMU with consolidation | EMU without consolidation | No EMU and no consolidation |
|-----------|------------------------|---------------------------|-----------------------------|
| <i>EC</i> | $\kappa + \lambda$     | $\kappa$                  | 0                           |
| <i>MV</i> | $\sigma - \tau$        | $\sigma$                  | 0                           |

With “no EMU and no consolidation” the initial situation remains unchanged, thus the payoffs are 0. The other outcomes imply changes. Due to debt externalities for *EC* the outcome “EMU with consolidation” is preferred over “EMU without consolidation”, for *MV* vice versa. If these payoffs are not realised in the initial period they have to be discounted, evaluating them from the point of view of the initial period.

The discount factors are  $\delta_i = \frac{(1 - \theta)}{(1 + \rho_i)}$  with  $i = EC, MV$  and  $\rho_i$  the rate of time preference.  $\theta$  is the above mentioned probability of EMU's final failure after a postponement resulting, for example, from capital market reactions to such a decision. Due to this definition  $0 \leq \delta_i \leq 1$ .

If *EC* can commit himself beyond doubt on his postponement threat then the outcome of the consolidation game is easily derived. This case would be given if the Maastricht Treaty's conditionality did not leave any room for interpretation. In this case *EC* could hint to an undeniable external constraint and *MV* has the choice to get either 0 (no EMU and no consolidation) or  $\sigma - \tau$  (EMU with consolidation). *MV* will decide in favour of EMU only if  $\sigma - \tau > 0$ . Thus, *EC* is always powerless with a negative  $\sigma$ .  $\sigma$  cannot a priori be assumed to be non-negative as the other parameters. The years preceding EMU have shown widely varying rates of acceptance of EMU in EU member countries. In a country where a large majority of the population is opposed to the project the same can be expected for *MV*. In this case, *EC*'s threat of a postponement is not a threat but a promise. But even with *MV* being an EMU supporter, *EC* has no chance to win the game, if for *MV* EMU's advantages would not at least balance the costs of consolidation, i. e.  $\sigma - \tau > 0$  with a positive  $\sigma$ .

Turning now to the more realistic case where there is no perfectly credible commitment, a necessary (but not sufficient) condition for the credibility of the postponement threat can be derived. *EC* could only be credible at least for one round of the game if the best possible outcome of a postponement is better for *EC* than an immediate capitulation. In order to avoid an immediate collapse of *EC*'s credibility, the following relation must hold:  $\delta_{EC} > 1/(1 + \lambda/\kappa)$ . This condition ensures that from *EC*'s point of view the EMU-consolidation-outcome after a postponement of one period is better than EMU immediately without consolidation. This is not a sufficient condition for credibility because it is not clear whether after a postponement *EC* can carry through consolidation immediately.

This result has important real world implications. In the run up to the EMU membership decision many politicians have assured that any postponement would imply a failure of EMU altogether. Translated into the model this means that  $\theta$  is approaching unity and  $\delta_i$  zero. If this is the case, *EC*'s threat has no credibility at all. Thus any attempt to use the EMU-postponement threat for consolidation is senseless if there is the general belief that a postponement of EMU leads to a failure with certainty.

The derivation of a sufficient condition for *EC*'s credibility amounts to the search for the equilibrium of this game. The solution can be found by looking for the maximum number of periods ( $t^*$ ) each side would be willing to wait in order to end up with the preferred outcome and to avoid immediate capitulation. Thus  $t^*$  is a measure of patience and defined to be the number of periods for which a player due to discounting is indifferent between immediately giving up and accepting the unfavourable outcome or enduring delay and getting the preferred outcome.

According to this calculus the maximum possible length of delay each player could hold out is given by the following equations:

$$(1) \quad t^*_{EC} = \ln\left(\frac{\kappa}{\kappa + \lambda}\right) / \ln \delta_{EC}$$

$$(2) \quad t^*_{MV} = \ln\left(\frac{\sigma - \tau}{\sigma}\right) / \ln \delta_{MV}$$

*EC*'s threat will be only credible if he is inherently more patient because he could stand longer than *MV* the discounting costs of an EMU delay. For both sides any strategy implying to hold out longer than  $t^*_i$  would not be internally consistent because an immediate capitulation would be preferable.

In deciding who is the winner in the consolidation game the sequential structure of the game has to be taken into account. Whenever *MV* decides to be tough he can speculate that *EC* will give up in the same period. Whenever *EC* decides to be tough he knows for sure that there will be at least a further delay of one period before the preferred result could possibly be realised. Therefore *EC* will win the game only if the following relation holds:

$$(3) \quad t^*_{EC} > t^*_{MV} + 1$$

It is an important feature of this complete information setting that a postponement of EMU might be used as a threat but will never occur. Since both sides know exactly the opponent's characteristics, they see from the beginning who will be able to stay out longer. If one side knows initially to be the loser in the end, it will prefer giving up immediately due to the discounting costs of any delay.<sup>1</sup> Either the credible postpone-

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<sup>1</sup> This is a standard result of this war of attrition type of model under complete information. See *Alesina/Drazen* (1991, p. 1180).



ment threat will make the *MV* to accept consolidation immediately or *MV* will resist an incredible threat and *EC* will give in.

The messages of this model with possible relevance for the EMU qualification period can be summarised in the following way:

- Postponement of EMU can be an effective threat that induces consolidation even if under the assumption of perfect information on the opponent's characteristics postponement will never occur.
- The larger the room for interpretation of the criteria the lower is the Council's relative bargaining power.
- The postponement threat by the Council loses any effectiveness if the Council is desperate to introduce the Euro for example because he fears financial market turbulences otherwise.
- If a majority of a country's population including the median voter does not want the Euro, the postponement threat can not be effective.

#### **IV. Econometric Evidence**

Some conclusions of the above bargaining model are open to empirical testing. No formal analysis is necessary to see that the successful start with a large group of founding members is in line with the theoretical prediction. Apart from Greece there was no postponement of EMU against the political desire of a national government since Denmark, Sweden and Great Britain did not want to join EMU in 1999. It is less obvious whether the fiscal performance in EU countries before 1999 corresponds to Euro acceptance as it should be according the theoretical considerations or whether it was the result of other factors such as the business cycle, economic necessity in a situation of high debt levels or a world-wide turn to fiscal conservatism that had nothing to do with EMU conditionality.

Table 2 includes the results of a dynamic fixed effect panel estimation (least squares with White heteroscedasticity-consistent covariances) for 19 OECD countries for the period between 1970 and 1997. The dependent variable is the annual primary surplus in per cent of GDP. The primary surplus is used because interest payments on the stock of existing debt can not be controlled by fiscal policy makers. Furthermore, endogeneity problems are reduced, since interest rates might be influenced by fiscal policy.

Primary surplus is regressed on some standard and non-standard explaining variables. The real growth rate and the change of the unemployment rate measure the cyclical impact. Apart from that an index of political instability is included since this kind of variable has proven to be helpful in explaining debt performance (see the survey by Alesina and Perotti, 1996). The index used here simply counts elections and significant changes in government including cabinet reshuffles. This variable is based on Lane, McKay and Newton (1997) and Keesing's Record of World Events (various years). The debt burden is included among the explaining variables with an obvious motivation. High debt levels force larger primary surpluses in order to stabilise debt growth. Data on primary surplus, debt level, growth and unemployment rate originate from the OECD Fiscal Positions and Business Cycle data base.

Central for testing the criteria's impact is the variable Euro Acceptance which can be interpreted to be a proxy for  $\sigma$  in the above described consolidation game. It is defined to be zero for non-EU countries for all periods and for EU countries before 1991. From 1991 onwards the variable measures the net support in percentage points for a single European currency (difference between percentage share of population for and against the Euro) as reported in Eurobarometer, the semi-annual report on public opinion polls by the European Commission. For each year the average of both polls was calculated. Because the Euro acceptance question was posed only from 1993 onwards, the 1993 results were also taken for 1991 and 1992. A similar approach was also taken by Rotte and Zimmermann (1998). These authors, however, used the general variable public support for European Union to explain public deficits. Following these authors a post 1990 dummy (equal to one from 1991 onwards) for all countries is also included. This variable controls for a sometimes suggested world-wide turn to a more conservative fiscal policy in the nineties which was independent from the Maastricht criteria.

As expected there is a strong cyclical impact on the budgetary balance. Furthermore, in line with the political-economic explanations of debt behaviour, political instability measured as the number of elections and changes in government tends to decrease the surplus. The result central to the focus of this study, however, is the significance of the Euro Acceptance variable. In a highly significant way this variable influences government balances with the theoretically predicted sign. The post 1990 dummy has a low significance and a negative sign. If there was a general change in the political attitude towards public deficits in the industrial countries this led to lower surpluses than before. The debt level shows

*Table 2*  
**Estimation Results for Primary Surplus**

Dependent variable: primary surplus in per cent of GDP

Sample: 1971–1997, yearly data, 19 countries, 453 observations

Pooled least squares with fixed effects and White heteroskedasticity – consistent t-values

Fixed effects not reported

| Exogeneous Variable  | Coefficient | Std. Error | t-Statistic | Significance |
|--|-------------|------------|-------------|--------------|
| Primary Surplus (–1)   | 0.72        | 0.047      | 15.17       | 0.000        |
| Real Growth Rate in %-points   | 0.20        | 0.050      | 4.00        | 0.000        |
| Change Unemployment Rate<br>in %-points  | –0.43       | 0.099      | –4.31       | 0.000        |
| Euro Acceptance  | 0.02        | 0.007      | 3.08        | 0.002        |
| Post 1990 Dummy  | –0.36       | 0.194      | –1.88       | 0.061        |
| Index of Political Instability   | –0.25       | 0.124      | –1.97       | 0.049        |
| Debt-GDP-Ratio in %-points   | 0.02        | 0.004      | 5.17        | 0.000        |
| R <sup>2</sup> : 0.76,    Adjusted R <sup>2</sup> : 0.75,    Durbin-Watson: 2.05 |             |            |             |              |

Data availability allowed for the inclusion of the following countries: USA, Japan, Germany, France, Italy, Great Britain, Canada, Australia, Austria, Belgium, Denmark, Spain, Finland, Greece, Ireland, Netherlands, Norway, Portugal, Sweden.

significantly the expected sign. High debt levels have forced countries to increase primary surpluses.

The significance of the Euro Acceptance variable is robust to some (not reported) modifications of the regression.<sup>2</sup> Thus, it could be argued that the UK and Denmark due to the opting out clause are not equally influenced by the EMU consolidation game. Treating both countries as non-EU in the construction of the Euro acceptance variable does, however, not reduce its significance. A further bias might result from the above described construction where the variable's values of 1993 were also taken for the two preceding years. This could particularly affect the fixed effects regression above which exploits the time series variation. How-

<sup>2</sup> These regression results can be obtained from the author.

ever, the significance was confirmed in random effect and common intercept specifications of the regression exploiting cross section variation.

Summing up, this econometric results support the view that the strategic role of the criteria was effective. In the pre-EMU period consolidation behaviour in EU countries can not be adequately understood without taking account of the criteria's strategic function.

## V. Conclusion and Outlook

It was the aim of this study to add a new dimension to the evaluation of the convergence criteria. The economic evaluation based only on traditional aspects such as stabilisation and allocation is too narrow since it misses the strategic intention of the criteria. In the terminology of bargaining theory the fiscal criteria are typical examples of a boundary. For a boundary a credible commitment is much more important than a sound theoretical basis. In the pre-EMU qualification period the criteria were indeed effective boundaries. By making EMU entry conditional on fiscal improvement it was possible for EU governments to make consolidation politically acceptable. The theoretical and econometric analysis shows that a popularity of the Euro was necessary for a successful use of the criteria.

Lessons from this episode can be drawn in different respects. The features of the EMU consolidation game are helpful to clarify the conditions for the effectiveness of a certain type of conditionality in a more general way: If a government's opponents do not give up resistance to reforms, they are punished by a delay of economic integration. The above results hint on the necessary constellation for such conditionality to work: First, government's opponents must have an interest in integration. Second, a government using that kind of conditionality must be inherently credible. Credibility is seriously undermined if the government itself is heavily eager for integration.

A standard proposition in the context of fiscal restrictions is that capital markets discipline budgetary policy. This general proposition does not hold in the specific context of this type of conditionality. If there is a high probability of EMU's final failure in case of delay resulting from capital market effects, then a government's credibility is destroyed and this conditionality will not work.

A more specific conclusion concerns the future of European fiscal policy after the start of EMU. According to the empirical findings there

has not been a general rethinking of deficits after 1990 that could justify optimistic expectations concerning a continuing debt reduction. In contrast to that the criteria had a significant disciplining impact in the countries with a high popularity of the Euro. Unless the Pact for Stability and Growth offers an equally powerful constraint as the EMU entry conditions did before May 1998, a return of national governments to higher deficits has to be expected.

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### Summary

#### Strategic Lessons from the Maastricht Criteria

The fiscal criteria of the Maastricht Treaty have been heavily criticised in the economic analysis. Some of this criticism might be based on a too narrow economic approach that neglects the strategic function of the criteria. This study sheds light on this neglected dimension and proposes to understand the criteria in the context of bargaining theory as boundaries. According to bargaining theory a boundary is created in order to change bargaining equilibria. It is argued that this was probably the main purpose of the criteria: By making the EMU entry conditional on fiscal improvement it was possible to change fiscal policy equilibria. In a simple negotiation model of the relationship between the EU council and the median voter of an EU member country the conditions for the strategic effectiveness of this kind of conditionality are demonstrated. The empirical findings support the theoretical predictions by showing that the criteria were particularly effective in countries with a high rate of Euro acceptance. This leads to the expectation that consolidation will slow down in these countries in the years following EMU’s start. (JEL H 87, F 33, C 78, D 72).

## Zusammenfassung

### Strategische Lehren der Maastricht-Kriterien

Die Fiskalkriterien des Maastrichter Vertrags sind in der ökonomischen Analyse heftig kritisiert worden. Ein Teil dieser Kritik basiert möglicherweise auf einem zu engen ökonomischen Ansatz, der die strategische Funktion der Kriterien übersehen hat. Diese Studie beleuchtet diese vernachlässigte Dimension und interpretiert die Kriterien in einem verhandlungstheoretischen Kontext als *Boundaries*. Eine *Boundary* hat den Erkenntnissen der Verhandlungstheorie zufolge den Zweck, Verhandlungsgleichgewichte zu verändern. Dies dürfte die hauptsächliche Funktion der Kriterien gewesen sein: Fiskalpolitische Gleichgewichte konnten dadurch verändert werden, daß ein EWU-Beitritt abhängig von einer Verbesserung der fiskalischen Variablen war. In einem einfachen Verhandlungsmodell werden die Bedingungen für die strategische Effektivität dieser Art von Konditionalität im Verhältnis zwischen dem Rat der EU und dem Medianwähler eines EU-Mitglieds demonstriert. Die empirischen Resultate bestätigen die Vorhersage der Theorie, daß die Kriterien besonders in den Ländern mit einer großen Euro-Zustimmung in der Bevölkerung effektiv waren. Dies rechtfertigt die Erwartung einer wieder nachlassenden Konsolidierung in diesen Ländern in den Jahren nach dem Beginn der EWU.

## Résumé

### Leçons stratégiques tirées des critères de Maastricht

Les critères fiscaux du Traité de Maastricht ont été fort critiqués dans l'analyse économique, entre autres leur approche économique trop étroite qui néglige la fonction stratégique des critères. Cette étude éclaire cette dimension négligée et propose de comprendre les critères dans le contexte de la théorie de la négociation comme limites. Selon la théorie de la négociation, une limite est créée afin de changer les équilibres de négociation. Il est argumenté que ceci était probablement l'objectif principal des critères: en conditionnant l'entrée de l'UEM à l'amélioration fiscale, il était possible de changer les équilibres politiques fiscaux. Dans un modèle simple de négociation de la relation entre le Conseil de l'UE et le vote moyen d'un pays membre de l'UE, les conditions pour l'efficacité stratégique de ce type de conditionnalité sont démontrées. Les résultats empiriques supportent les prédictions théoriques en montrant que les critères étaient particulièrement efficaces dans les pays où l'Euro est fortement accepté. Ceci permet de s'attendre à ce que la consolidation ralentisse dans ces pays dans les années qui suivent le début de l'UEM.