The 1997 EIB Prize

First Prize
What is the optimum strategy for freezing exchange rate parities at the start of EMU?
Bernadette Frédérick & Peter Vanden Houte

Second Prize
Eurobanking, a new world
Jean Dermine

Joint Third Prize
The dynamics of European integration
Daniel Gros

Joint Third Prize
On the efficiency of national social security systems in the European Union
Martin Kolmar

Awards for Authors under 30
Financial system models, corporate governance and capital investment in OECD countries: Some stylized facts
Pablo de Andrés Alonso & Félix J. Lopez Iturriaga

A more stable stability pact
Volker Kollmann & Andri Kopperschmidt

How can enlargement of the European Union be reconciled with monetary construction?
Jérôme Vacher
**Editorial policy**

The *EIB Papers* are published twice a year by the Chief Economist’s Department of the European Investment Bank. The journal is aimed at encouraging high-quality economic research and debate on matters of a European interest. As such, the Papers are intended to be accessible to non-specialist readers and emphasise policy dimensions rather than technical issues. They present the results of research carried out by Bank staff together with contributions from external scholars and specialists. The winning essays of the biennial *EIB Prize* are also published in the winter edition during competition years.

Articles will only be accepted for publication on the condition that they have not already been published elsewhere. All articles in the *EIB Papers* may be freely reproduced and quoted; however, the Editor would appreciate appropriate acknowledgement and a copy of the publication in question.

The views expressed in the articles are those of the individual authors and do not necessarily reflect the position of the *EIB*.

---

**Advisory Board**
Alfred Steinherr (Chairman), Pier-Luigi Gilibert, Jacques Girard, Theoharry Grammatikos, Daniel Ottolenghi, Eric Perée

**Editor**
Christopher Hurst
The 1997 EIB Prize: The winning essays
Contents

5 Preface by Sir Brian Unwin, President

The 1997 EIB Prize

Daphne Venturas 7 The winning essays

First Prize

Bernadette Fréderick & Peter Vanden Houte
What is the optimum strategy for freezing exchange rate parities at the start of EMU?

Second Prize

Jean Dermine 31 Eurobanking, a new world

Joint Third Prize

Daniel Gros 45 The dynamics of European integration

Joint Third Prize

Martin Kolmar 55 On the efficiency of national social security systems in the European Union

Awards for Authors under 30

Pablo de Andrés Alonso & Félix J. López Iturriaga 69 Financial system models, corporate governance and capital investment in OECD countries: Some stylised facts

Volker Köllmann & Andri Kopperschmidt 97 A more stable stability pact

Jérôme Vacher 107 How can enlargement of the European Union be reconciled with monetary construction?
Preface

It gives me great pleasure to introduce this special "1997 EIB Prize" issue of the Papers, which presents the essays selected for award this year. I know that the Prize Jury was faced with difficult choices and I should like to express my appreciation to the Jury members, especially to the Chairman, Lord Roll, for their dedication and effort. I should also like to extend my warmest congratulations to the prize-winners, who succeeded so commendably in a new competition that marked a significant departure from the past.

The biennial EIB Prize was initially established in 1983, on the occasion of the Bank's 25th Anniversary, with the aim of encouraging academic research on investment and its financing. As a consequence, the competition was limited to submissions in the form of completed doctoral theses from the first award in 1985 until 1995. The profound shifts and movements in the European geo-political landscape in recent years, however, prompted us to make a change in focus for the 1997 EIB Prize. In a time of intense debate regarding the design of the future European Union and the Bank's role in this debate, we decided that the EIB Prize should be restructured to provide a neutral forum for innovative ideas and topical policy discussions. As a result, a variety of prizes was offered this year in a more open competition aimed at attracting original policy-oriented analyses of contemporary economic and financial issues.

The response has been most encouraging. Analysts from banks, universities, private companies and research institutes across Europe submitted papers addressing many of the central topics on the current European economic agenda. As you will see, the selected essays published in this issue cover the dominant themes of pre-EMU Europe. The next EIB Prize will be offered in 1999 and we have every reason to expect that it will be equally successful in drawing a wide range of contributions related to the on-going European policy debate.
The EIB Prize is awarded for short essays on economic and financial topics relating to European affairs. For the 1997 prize, the awards were as follows: First Prize, ECU 10,000; Second Prize, ECU 7,500; Third Prize, ECU 5,000; and three ECU 1,000 Prizes for entries from persons under the age of 30.

The winning entries were selected by the Prize Jury, which comprised:

- Lord Roll of Ipsden, Chairman of the Jury
- Antonio Borges, the Dean of INSEAD
- Edmond Malinvaud, of the Collège de France
- Alberto Quadrio-Curzio, of the Catholic University of Milan
- Helmut Schlesinger, former President of the Bundesbank
- Jacques-François Thisse, of the Catholic University of Louvain
- Alfred Steinherr, Chief Economist of the EIB.

The EIB greatly appreciates the major contribution of the Jury in judging this competition.

The prizes are to be presented in October 1997, at a conference held under the auspices of the European University Institute, Florence.

The next EIB Prize will be in 1999. It is open to any person who has the nationality of a Member State of the EU, a Member State of EFTA, or of an Association Agreement country. The deadline for submissions will be 2 February, 1999.

More details of the Prize Rules may be obtained from:

EIB Prize Secretariat
European Investment Bank
100, Boulevard Konrad Adenauer
L-2950 Luxembourg
Fax: 4379-3492
The Winning Essays

This issue of the EIB Papers presents the award-winning essays in the 1997 EIB Prize. As could be expected from a competition open to essays on any economic and financial topic related to European affairs, the entries received from every corner of Europe covered a wide range of subjects. It soon became apparent, however, that despite the diversity of topic, approach and direction, each tried to answer a common basic question - how can we construct a viable Europe for the 21st Century?

Taking as given the logic of a single currency in a single market, Bernadette Frédérique and Peter Vanden Houte (first prize) suggest that the failure of EMU would consign European integration itself to oblivion and that, in this context, the freezing of exchange rate parities at economically justified levels is a prerequisite for a smooth transition to EMU.

Frédérique and Vanden Houte note that, although recent work on the theory of optimal currency areas has defined a series of structural and microeconomic conditions that countries must satisfy if they are to create a monetary union without incurring excessive costs, the Maastricht Treaty only emphasises macroeconomic convergence prior to entry. Even if the EU countries as a whole have probably not achieved an adequate degree of convergence at the microeconomic level to be defined as an optimum currency area (OCA), the Maastricht criteria, combined with political considerations, will probably result in a broadly-based EMU starting on 1 January 1999. The question then becomes, how to ensure the success of such a broadly-based EMU?

Frédérique and Vanden Houte suggest that abandonment of the nominal exchange rate as an instrument of adjustment implies that future adjustments will be based on self-adjusting real wages. As a result, it is important for parities to be frozen at levels that avoid excessive pressure on wages. The irrevocable fixing of conversion rates on 1 January 1999, with the "ins" designated by the Council during 1998, would leave ample opportunity for speculation, however, and should the markets be left to their own devices, there is a risk that parities frozen on the basis of market rates on 31 December 1998 will be at abnormal levels. An optimal strategy
would, therefore, have to meet the requirements of: using market rates as a reference for fixing the conversion rates; freezing exchange rates at levels that are economically justified; and discouraging speculation.

In implementing this strategy, monetary authorities could announce either the method to be used to freeze parities, or the conversion rates for each currency. Frédéric and Vanden Houte first examine the method of using an average (weighted or not, of the exchange rates calculated over a given period) \(^1\). After identifying the drawbacks, they conclude that the average method complies only to a limited extent with the required constraints and should, therefore, be ruled out. The second method involves the announcement of "desired" conversion rates for each currency. Frédéric and Vanden Houte advance the argument that bilateral central rates meet the necessary preconditions of credibility (allowing gradual convergence between market and desired rates) and prior political consensus among the "ins" (eliminating the possibility of a last minute devaluation). The conclusion is that the optimum strategy for freezing exchange rate parities at the start of EMU is for the monetary authorities to announce that central rates will be used as conversion rates as soon as the "ins" are designated and, at the same time, to warn financial markets that they will intervene strongly to counter speculation.

The elimination of intra-European exchange rates in the new world of the EMU is the

starting point for Jean Dermine (second prize) to examine how the move to the euro will modify the sources of competitive advantage for banks and so permanently and fundamentally alter European banking markets.

Besides an obvious loss of business trading of intra-European currencies, Dermine identifies eight major effects concerning capital markets and/or commercial banking. Starting with the government bond market (and its appendix, the interest rate derivative market) a first observation is that the arrival of a common currency will create the need for a single risk-free interest rate yield curve, matching interest rates to maturities, to act as an anchor for the pricing of securities. A second observation is that the government bond market in Europe is very fragmented, not only because of the number of countries involved, but also within the national markets. Domestic players hold a large market share of corporate bond and equity underwriting and account for most of secondary trading. This raises the question of the sources of competitive advantage for local banks and whether these sources will survive with a single currency. Dermine points out that, with a single currency and the removal of exchange risk, the advantage of home currency disappears and there will be a fundamental change in the competitive structure of these markets as savers diversify their portfolios across Europe. Fragmentation is also evident in the fund management industry, where the retail distribution network constitutes a strong source of competitive advantage.

---

\(^1\) Suggested by Alexandre Lamfalussy, then President of the European Monetary Institute.
This advantage only applies to retail investors, however, and is not a barrier to entry in the institutional market. A single currency will, in effect, eliminate obstacles to international diversification. In discussing the Euromarket, Dermine mentions the issue of the size and coverage of the reserve requirement on euro-denominated deposits in the future, then examines the role of correspondent banks in a future cross-payment system, which will probably be a decentralised national-based system complemented by TARGET. His view is that the role of correspondent banking is likely to decrease, even independently of a single currency, because the introduction of real-time cross-border payment facilities will help to reduce settlement and payment risks. In foreign exchange markets, a direct effect of the single currency will be not only the disappearance of intra-European foreign exchange transactions, but also the elimination of the competitive advantage of a particular bank in its home currency vis-à-vis third currencies. The last effect of a single currency concerns the impact on bank profitability of doing business in a low inflation environment. Dermine finds that, although the ECB objectives will certainly lead to lower profit margins on deposits, a higher margin on personal loans (because of their relative inelasticity) and a reduction in the so-called "inflation tax" will soften the effect.

Finally, one of the asserted benefits of EMU is that the single currency will compete with the dollar as an international currency. Dermine points out that, unlike a national currency which is imposed by legislation, the position of an international currency is fixed by supply and demand on world capital markets and offers the opinion that, "any forecast on the relative importance of the US dollar and the euro in the future is premature and beyond our understanding." The conclusion is that, irrespective of the role it will play on the international scene, the single currency will make irreversible the creation of a single European banking market and that a new banking world will emerge with very different sources of competitive advantage.

The concept of common economic interest is expanded by Daniel Gros, (shared third prize) who constructs a model of European integration "as the outcome of a dynamic interaction of an imperfect political process and basic economic principles". The model shows how a politically motivated trade-liberalisation initiative can start a dynamic process of economic integration, which leads to more trade and so reinforces the demand for the further lowering of trade barriers, i.e. there will be a multiplier effect. In this model, the existence of strong, common institutions modifies the domestic political economy equilibrium and quickens the dynamic process - in this context, the evolution of the Common Market can be contrasted with that of EFTA, which did not have common institutions and so failed to develop similar dynamics. In such a process, "political leadership" becomes even more important, because a common institutional framework gives politicians a more efficient instrument and thus increases the "pay-off" of political leader-
ship. The model can also be applied to the debate about deepening versus widening which need not be mutually exclusive. An increased number of EU members increases the weight of interest groups exposed to intra-EU trade and hence the demand for integration. A greater number of EU members might also diminish the efficiency of EU institutions, however, and this would reduce the dynamics of the integration process. A possible trade-off between deepening and widening, therefore, depends on the effect of widening on the efficiency of EU institutions. Finally, the model implies that the "bicycle" view of European integration is misleading, because the dynamics of an integration process are driven by domestic political processes in member countries that interact within a common framework. Gros is careful to point out that the dynamic process he identifies shows that the interaction of purely national players can lead to a self-reinforcing process of integration, but does not lead to the conclusion that "Europe" will replace the nation state.

Martin Kolmar (shared third prize) takes up the point of effective EU institutions in an unusual proposal for eliminating the allocative inefficiencies of social security systems in the EU. Historically, all the member states have tried to insure their citizens against certain life risks through more or less extensive social security systems. These are now under considerable pressure to reform, due to ageing populations, the process of globalisation and European integration itself. Kolmar attempts to identify those crisis components in national welfare systems that are attributable to the process of European market integration. His analysis indicates that, where there is national responsibility for social insurance, factor mobility in a single market generates allocative inefficiencies by encouraging the transfer of capital to locations with lower ancillary wage costs and by creating a fiscal incentive for labour to migrate, as individual contributions and benefits can be changed by the choice of employment location. The core of the problem, therefore, lies in the opportunity for firms and individuals to withdraw from the contract (contributions) through migration after the risk (cost) is realised. Kolmar proposes the elimination of this choice by switching from the principle of residence to that of country of origin as the qualifying criterion for benefit payments. Finally, for those inefficiencies that cannot be eliminated by applying the origin principle, Kolmar suggests the implementation of a system of bilateral interjurisdictional transfers, possibly with the European Regional and Social Funds (appropriately restructured) acting as the central authority in the redistribution of income between the countries.

The future of European integration is a primary concern in the Volker Köllmann/Andri Kopperschmidt analysis (under 30 prize) of the current proposals for a Stability Pact. Given the effort to establish an inflation-averse EMU, the Stability Pact is designed to ensure long-term fiscal discipline for all EMU member countries. The rationale for imposing such a control mechanism is based on the economic assumption that the deficit and debt policies of
individual EMU member countries affect overall monetary stability. The debate about fiscal constraints has concentrated on deficit criteria, however, rather than on the total amount of public debt in EMU member countries. Köllmann/Kopperschmidt find this emphasis imbalanced, because the essential issues are the level of total debt and whether this is rising on a long-term trend. They contend that, if there is a relation between fiscal criteria and price stability in the EMU at all, it is that high public debt may lead to inflation. In this context, they are particularly concerned about the monetary bail-out of heavily indebted countries through high inflation and by fiscal bail-out, i.e. financial pressure on other EMU members to make transfer payments. They also indicate that should only one EMU country miss a specific deficit target (say, 3% of GDP) for two or three years in a row, this should have no impact on the monetary policy of the ECB, nor result in a cooperative international action to prevent a financial crisis. Köllmann/Kopperschmidt underline that: firstly, impacts on the EMU's monetary policy depend on the number and the size of highly indebted countries and on the level of their debt; and secondly, impacts on the solvency situation of a country depend on its interest burden and, therefore, on its level of debt. Thus, the aim should rather be a reduction of public debt in all EMU member countries, gradually and in a long-run perspective.

As an alternative to the deficit criteria, Köllmann/Kopperschmidt propose the reduction of debt and the building up of a low-inflation EMU through EMU member countries agreeing on a well-defined procedure to lower their overall public debt/GDP ratios and by translating into action accountability and incentive measures for the ECB, whereby Governors' posts are dependent on the inflation performance of EMU. These two parts are seen as inseparable, the first implying that high inflation would automatically lead to the obligation of member countries to reduce their debt ratios and the second that, at the same time, ECB Governors would be prevented from running high inflation to force national governments to lower their public debt.

Köllmann/Kopperschmidt are aware, however, that this proposal is no longer achievable in political terms. For this reason, they recommend that the Stability Pact be cancelled and that EU policy focus on an appropriate macro-economic framework for EMU, taking in labour mobility, price flexibility and effective competition policy.

The complexities of establishing a viable EMU are taken a step further by Jérôme Vacher (under 30 prize), who debates the compatibility of European monetary integration with enlargement of the EU. His main concern is the challenge, in the next few years, to make arrangements that both take account of the lessons of transition and create the conditions for smooth accession. The first step would be to ensure that an appropriate framework for sustained growth will emerge out of the general confusion of changing systems, financial instability and structural reform and, to this end, particular attention must be paid to reducing inflation. In the
search for a monetary solution for the transition countries, Vacher considers the option of currency boards and identifies the advantages as well as the potentially unfavourable aspects. The experience of the Baltic Republics, however, indicates that the establishment of currency boards a) facilitated successful macroeconomic stabilisation at both monetary and budgetary levels, b) enabled a first step to be taken towards nominal convergence of their economies and facilitated their integration into outside economies and c) showed that the absence of a lender of last resort was not essential for the correct management of crises.

Vacher suggests that the introduction of the euro can be reconciled with EU enlargement through the establishment of systems similar to currency boards, with the euro as the anchor and reserve currency. To render such a system viable, however, particular attention must be given to the problems of possible overvaluation of exchange rates and the absence of a lender of last resort. In addition, the establishment of currency boards presupposes the existence of reserves covering at least 100% of the monetary base and this process might prove difficult. If these issues can be resolved, a currency board system would offer the possibility of attaining nominal convergence with the reference currency, including an approximation of interest and inflation rates. The development of trade with the EU, an adequate macroeconomic framework and further growth would then strengthen the conditions for real convergence.

Pablo de Andrés Alonso and Félix López Iturriaga (under 30 prize) address the issue of European financial systems and the possibility of convergence from a very different angle, that of corporate finance. The central idea in their approach is that a possible explanation for the international variations observed in the capital structure of firms could be the role played by national financial systems in the allocation of control over the strategic investment decisions of firms. Their paper, therefore, examines the characteristics of the market-based (Anglo-Saxon) and bank-based (Continental) financial system models and offers an empirical analysis of the comparison between the two models of financial organisation, the financial and contractual design of firms and the decisions taken about real investment.

The results of this study indicate that: the degree of equity concentration in the firms of each country is related to the development of their capital markets; the market-based model seems better suited for firms with important fixed assets (given that the higher the proportion of fixed assets, the lower a firm's flexibility to allocate its financial resources); there is no evidence that market-based firms take a short-term view of R & D; firms reliant on bank financing have a higher probability of choosing investments which carry a lower risk. Alonso and de Andrés also find that, although the data does not present definite conclusions regarding convergence of the two financial system models, there is a marked tendency towards the integration of securities markets and bank financing markets.
Financial systems are not static, however, and the last decade has seen an acceleration of globalisation in the financial services industry due to greater competition, deregulation, financial innovation and the increasing role played by market forces. It is within a transformed framework of financial systems, therefore, that the process of monetary integration in Europe will take place.

The essays have raised many of the key economic and financial issues currently confronting European policy-makers and, even more important, they have tried to tackle some of the real problems linked to these issues. The solutions proposed are sometimes unusual, but never evasive; there is no pretence that European construction is a simple matter. At the core of the complex tangle of economic and political choices presented in the different essays, however, lies the same conviction: European integration in general and the creation of EMU in particular are not only inescapable in a vision of the new Europe, they are also desirable.

D.A. Venturas
Directorate for Economics & Information
Freezing the exchange rate parities of the currencies participating in EMU is an important factor for the viability of the project, for a broadly-based EMU is bound to be faced from the outset with diverging economic situations. Paradoxically, the Maastricht Treaty provides but few safeguards that exchange rate parities will indeed be frozen at levels warranted by fundamentals. In fact, the Treaty imposes only two constraints: the date (1 January 1999, i.e. seven months after the “ins” are selected), and maintaining the external value of the Euro. Compliance with the second constraint could be construed as a suggestion to use market rates as of 31 December 1998 in order to freeze conversion rates. However, leaving the freezing of exchange rate parities to the markets seems a rather risky gamble.

This paper suggests an optimum strategy to implement the freezing of exchange rate parities at the launch of EMU. Underlying this strategy is the idea of announcing “desired conversion rates” in May 1998 when the “ins” are selected. Moreover, it is suggested to use the bilateral central rates of the European Exchange Rate Mechanism as “desired rates”, rather than an average of past exchange rates, given the volatility implied by the latter method. Simultaneously, monetary authorities should commit themselves to make concerted and unlimited interventions at the end of 1998 in order to achieve the convergence of market rates towards the central rates, which would, as a matter of course, eliminate any volatility during the run-up period from May through December 1998.

Bernadette Frédérick, from Belgium, earned a Master's in Economics from the Facultés Universitaires Notre-Dame de la Paix at Namur, Belgium. Her thesis on the European single market for electricity was published by Deloitte and Touche Consultants. She joined Bank Brussels Lambert in 1994 and was briefly on secondment to “Union Wallonne des Entreprises”, the Employers' Federation in Wallonia, to diagnose the economic situation in that area. Currently, she works as an international economist for Fixed Income Research, advising traders and clients on financial market developments.

Peter Vanden Houte, also a national of Belgium, studied Economics at the Katholieke Universiteit Leuven, where he subsequently worked for a few years as a researcher. During that period he published several articles on industrial organisation and European integration, and acted as a consultant for both governmental and business organisations. He joined Bank Brussels Lambert in 1989 and is currently senior economist responsible for Fixed Income Research, offering advice on financial market developments.
What is the optimum strategy for freezing exchange rate parities at the start of EMU?

1. Introduction

As rightly pointed out in the Treaty of Rome, EMU (Economic and Monetary Union) marks a decisive stage towards "an ever closer union among the peoples of Europe", (1) for monetary unification in Europe will lead to greater co-ordination of national economic policies and will accelerate the process of economic convergence which is essential for stability and growth. A high degree of economic and political cohesion will likewise be essential to ensure the success of EMU. The failure of earlier attempts to achieve monetary union between independent countries suggests that, in addition to its traditional functions, money probably plays a political role which is far greater than that associated merely with seigniorage.

From this point of view it is crucial for Europe that EMU should be a success from the very first days of its existence. In this way, a virtuous and self-fulfilling process will be set in motion in which EMU will reinforce the need for economic and political integration and vice versa. (2) If EMU were to fail, it would not only be a fine economic integration project that would fail, but the pace of European integration itself would probably slacken. This just goes to show how much is at stake.

The enterprise is not without risk, though. The procedure for determining which countries qualify, combined with the distribution of votes within the decision-making body, makes the scenario of a broadly-based EMU starting up on 1 January 1999 highly probable. In this context, freezing exchange rate parities on 1 January 1999 at economically justified levels would appear to be a prerequisite for a smooth transition to EMU. On this subject, is it not significant that The Economist in its leader of 15 February 1997 attributed the structural problems of the German economy inter alia to an inappropriate conversion rate for the Ostmark (3) at the time of reunification?

Paradoxically, the Maastricht Treaty does not fully guarantee that exchange rate parities will be frozen at economically justified levels. It would therefore appear essential for the monetary authorities to adopt an additional strategy aimed ultimately at ensuring that the start of EMU is a success.

2. Is the European Union an optimum currency area?

The success of the EMU project is crucial, as it will provide an additional guarantee to secure the irreversible nature of the process of European integration. And yet this venture has no historical precedent. There are indeed examples such as Germany's reunification, where separate political entities decide to form a political union while at the same time creating a

---

1. Title I (Article A) of the Treaty of Rome establishing the European Community.
2. See, for instance, Schlesinger (1996).
monetary union. There are other examples, such as the BLEU, where a small country without a central bank decides to tie its currency to that of another country and surrenders the conduct of its monetary policy to that country. But there is no reference model in which states hand over their monetary sovereignty to a common central bank. [4]

The management of the economies in question, which will remain largely a matter for the national governments, will be affected to some extent by the transition to EMU given that on 1 January 1999 selected states will relinquish their monetary sovereignty and hand it over to the European Central Bank. In other words, the states involved will no longer be able either to use their exchange rates or unilaterally modify their monetary policies in order to correct macroeconomic imbalances. In the absence of these two adjustment mechanisms, what are the conditions which might a priori guarantee the success of EMU?

From the theory of Optimum Currency Areas (OCA) and recent research on this subject have been derived a series of structural and microeconomic conditions which countries must satisfy if they are to create a monetary union without incurring excessive costs in connection with adjusting to economic disruptions. Paradoxically, the Maastricht Treaty remains silent on these aspects, since it places emphasis instead on macroeconomic convergence prior to entry into monetary union.

Two pioneers of the theory of optimum currency areas, McKinnon and Kenen, have stressed the importance of diversification and similarities in production structures for countries wishing to create a monetary union. The greater the differences and the lower the degree of diversification in the economic fabric of the countries participating in a monetary union, the greater the likelihood of asymmetric shocks (i.e. events which hit one country more than others) occurring. This means that, in the absence of exchange rate and monetary policy instruments, countries will have to exhibit greater flexibility on their labour markets (wage flexibility, labour mobility, etc.) and/or a great ability for fiscal adjustment in order to avoid substantial adjustment costs.

A number of empirical studies (5) have endeavoured to determine whether the European Union satisfied the conditions of an OCA. This research shows that the EU as a whole is not an optimum currency area. Production structures in Europe are still so different that the likelihood of asymmetric shocks occurring cannot be ignored. Moreover, the substitute adjustment mechanisms (labour market flexibility, labour mobility and fiscal compliance) are, for the time being, not sufficiently operational. Other research supports the thesis that a subset of European countries constitute an OCA but they have failed to reach a consensus on the size of that optimum subset. While there is a broad consensus to the effect that the "core" countries constitute an OCA, nothing is less certain with regard to a monetary union that includes the southern European countries or indeed even Ireland.

According to the OCA theory, a "first best" solution would be to create a "mini" monetary union from which the southern countries would certainly be excluded. This scenario, however, is extremely unlikely, given the procedure provided for in the Maastricht Treaty for selecting which countries qualify.

---

4. See, for instance, Eichengreen (1993)
In addition to microeconomic benefits, such as the elimination of transaction costs, monetary policy will be pursued by an institution enjoying a better reputation than their own central bank.

Article 109J indeed specifies that the decision which will lead to some countries being excluded from EMU will be taken by the Council of Heads of State or Government, acting by a qualified majority (i.e. 62 votes out of 87). The eight countries often referred to as a matter of course as being part of the first wave (Germany, France, Belgium, the Netherlands, Luxembourg, Ireland, Finland and Austria) have a total of 42 votes, i.e. a blocking minority (26 votes or more) but certainly not the necessary qualified majority. The “peripheral” countries (Spain, Portugal, Sweden, Italy, Greece, Denmark and the United Kingdom) together have 45 votes, which also constitutes a blocking minority but not the qualified majority. The breakdown of votes within the Council therefore implies that the few countries who may be taking part in the single currency on 1 January 1999 will need the backing of those excluded in the first round. A scenario which, to say the least, is implausible!

The procedure for establishing which countries qualify, combined with the distribution of votes within the Council, will result in a broadly-based EMU starting up on 1 January 1999. The “peripheral” countries admitted into the circle of the “virtuous” ones would have to have made the macroeconomic convergence effort required to come close to the sacrosanct convergence criteria. At the microeconomic level, however, some of the countries in question will probably not have achieved an adequate degree of convergence. In other words, the Maastricht political constellation is incompatible with the creation of an OCA.

3. How to secure a swift transition for the peripheral countries?

This digression on the Optimum Currency Area theory shows the potential costs peripheral countries might incur if they participate in monetary union and are hit by asymmetric shocks. Yet research conducted by the European Commission [6] somewhat qualifies the conclusions of the OCA theory by listing the benefits these countries derive from joining a monetary union. In addition to microeconomic benefits (such as the elimination of transaction costs), they acquire a higher credibility as they adopt the monetary policy pursued by an institution enjoying a better reputation than their own central bank.

This advantage can be graphically displayed with the Barro-Gordon model (7).

Compared with the core countries, the central banks of the peripheral countries have different tolerance thresholds with regard to inflation (P) and unemployment (U), which were reflected in indifference curves dissimilar from those of the central banks in the core countries (as can be seen from figure 1). When this curve is associated with the Phillips curve adjusted for inflationary expectations, a balance is struck for the peripheral countries at point E' in figure 1.

In the past, these countries did not hesitate to let inflation run out of hand in order to boost employment. However, as the lack of credibility of such policies was incorporated in inflationary expectations (\(E(P) = P_1\)), these countries never managed to achieve a lasting decline of unemployment (\(U_n\) being the natural unemployment rate), while inflation proved to be structurally higher than in the core countries. As a result, the peripheral countries had to let their currencies depreciate so as to prevent the higher rate of inflation from resulting into an appreciation of their real exchange rate.

7. For a discussion, see De Grauwe (1992)
The core countries have abandoned the use of their nominal exchange rates, some of them a long time ago. This situation stems from the fact that their respective central banks share similar preferences with regard to inflation and unemployment (balance at point E in figure 1), as they have made the fight against inflation their priority objective. In other words, in the event of macroeconomic imbalances, they are prepared to make sacrifices in terms of employment in order to curb inflation.

Figure 1. Adoption of a more orthodox posture in the peripheral countries and adjustment of inflationary expectations

On 1 January 1999, the national central banks will surrender their monetary sovereignty to the European Central Bank. What will the preferences of the ECB be like? The statutes of the ECB guarantee that the bank will be at least as relentless in its fight against inflation as the central banks of the core countries. The Maastricht Treaty does indeed assign price stability as the prime objective of the ECB and also guarantees its independence.

The peripheral countries' transition to EMU will therefore lead to a shift in the monetary preferences of their respective central banks towards the preferences of the central banks in the core countries. As the ECB will probably enjoy a high credibility with financial markets and the population at large, the adoption of a more orthodox posture by the peripheral countries will be translated into a structurally lower level of inflation, with resulting benefits in terms of long-term growth (8) (balance at point E).

Ideally, preferences of the peripheral countries (from point P₁ to point P₀ in figure 1) and inflationary expectations of financial markets and the population would have adjusted immediately to the situation prevailing in the hard core countries ((E|P) = P₀) through some kind of Big Bang in the peripheral countries. From that day on, central banks in the peripheral countries would have been labelled as virtuous institutions, with all the benefits involved (from point E' to point E).

However, things are a little different in real life, for the Maastricht Treaty requires the peripheral countries to display low inflation rates before they are allowed to join EMU. While central banks'
preferences may change immediately, inflationary expectations of financial markets and the population adjust but gradually, since the central banks in the peripheral countries will not have acquired enough credibility for financial markets to incorporate the changed preferences into their inflationary expectations. Hence, as inflationary expectations take time to adjust, the adoption of a more orthodox posture by the central banks in the peripheral countries will be achieved at a cost in terms of unemployment in these countries (from point E' to E" in figure 1).

Recent developments in Europe tend to confirm this assumption. Not only are most of the peripheral countries saddled with unemployment rates exceeding the European average, but in addition their unemployment rates show the strongest rise throughout the 1992-96 period. Moreover, Italy's and Spain's real bond yield spreads with Germany were on average wider in 1992-96 than in the latter half of the 1980s. This shows how much time it took the peripheral central banks to establish their credibility with financial markets.

In view of the costs which the peripheral countries already had to bear on account of the Maastricht Treaty, it is described that the exchange rate parities of these countries are frozen at appropriate or, better still, competitive levels. Moreover, as financial market volatility has an adverse impact on growth and employment, European currencies also need to be guaranteed some kind of stability during the run-up period. Mounting unemployment might trigger social unrest and, perhaps, the dismantling of EMU soon after launch. In theory, the likelihood that countries under heavy pressure during the 1999-2001 period might decide to leave EMU, cannot be ruled out altogether, even though the Maastricht Treaty does not provide for such an option.

4. The constraints of the Maastricht Treaty

As the above analysis shows, the fixing of economically justified conversion rates on 1 January 1999 is a crucial factor for the success of EMU.

Paradoxically, the Maastricht Treaty does not provide for any real procedure for freezing parities. Article 109L merely states that: "At the starting date of the third stage, the Council shall, acting with the unanimity of the Member States without derogation, on a proposal from the Commission and after consulting the ECB, adopt the conversion rates at which their currencies shall be irrevocably fixed and at which irreversibly fixed rate the ECU shall be substituted for these currencies, and the ECU will become a currency in its own right. This measure shall by itself not modify the external value of the ECU." The Madrid Summit in December 1995 confirmed this provision and specified that the new single currency would be called the "euro".

Hence, this article imposes two constraints upon the procedure for freezing parities, constraints relating to maintaining the external value of the euro and relating to the timetable.

4.1 Maintaining the external value of the euro

The Maastricht Treaty stipulates that freezing the conversion rates may not, in itself, modify the external value of the euro. This apparently straightforward constraint is, however, open to interpretation. Does it apply to all parities or solely to currencies which are not part of EMU? In other words, is it necessary to guarantee that, between D day (1 January 1999) and D day-1, 1 ECU in terms of cur-
currency $x$ is equal to 1 euro in terms of that currency, whatever $x$ is, or solely with regard to non-EMU currencies (such as the dollar)?

If the "external value" constraint concerns all currencies, including the "in" country currencies, compliance with this constraint requires that parities are definitively frozen at market rates prevailing on 31 December 1998, as explained in Appendix 1. The experience with the ERM (specifically, when the basket was revised) shows that this is how the authorities interpret "external value".

If this constraint concerns only the non-EMU currencies, it is theoretically possible to find exchange rate parities differing from market rates as at 31 December 1998 and yet meeting the constraint. But this is merely a theoretical possibility, in our opinion.

In practice, this would require that the exchange rates of all European currencies are changed versus the dollar. Yet this appears highly unlikely, for the European currencies and the dollar operate in a perfectly flexible exchange rate system. Assuming that the exchange rate of one European currency (the D-Mark, for example) remains stable against the dollar, the fact that currency weightings in the ECU have been frozen (Art. 109G of the Maastricht Treaty) prevents the authorities from undertaking one final realignment and forces them to adopt market rates as at 31 December 1998 as the ultimate conversion rates, as shown in Appendix 2.

Changing exchange rate parities at the time when conversion rates are determined seems hardly acceptable politically. For two reasons:

- This option would immediately result in a redistribution of wealth, quite contrary to the spirit of the Maastricht Treaty: EMU is not a monetary reform (9).
- The utilisation of exchange rate parities other than market rates might trigger a legal battle over the interpretation of "external value".

This leads us to believe that the market rates as of 31 December 1998 will be used, eventually, to freeze exchange rate parities on 1 January 1999.

4.2 The timetable constraint

The Treaty requires the conversion rates to be fixed irrevocably on 1 January 1999, while the "ins" will be designated by the Council in May 1998. This 8-month period will give financial markets ample opportunity to speculate with regard to the "in" currencies' conversion rates.

In particular, financial markets might think that certain countries could welcome a depreciation of their currency just before the freezing of parities. They might also misinterpret official statements. Yet past experience shows that failure to predict future economic policy correctly is one of the many causes of destabilising speculative movements unwarranted by fundamentals. This was the case when the French franc came under fire in 1993 (10).

10. Artus (1996)
4.3 The need for a complementary strategy

Thus, leaving the markets to their own devices and freezing parities on the basis of market rates on 31 December 1998 is a risky gamble, for if parities are frozen at unrealistic levels, this would be bound to lead to the failure of EMU. In order to palliate the shortcomings of the Maastricht Treaty, the monetary authorities will need to give financial markets a clue of the conversion rates that will be used to freeze parities on 1 January 1999.

To that end, they will have to develop a strategy aimed at fixing “desired” and credible conversion rates beforehand, enabling participating countries’ currencies to achieve a swift convergence towards these rates by 31 December 1998. Such a strategy would comply with the following three-fold constraint:

• to use market rates as a reference for fixing the conversion rates;
• to freeze exchange rates at levels warranted by fundamentals;
• to reduce the volatility of financial markets.

The optimal strategy faces two problems: making sure that market rates converge towards the “desired” conversion rates, on the one hand, and defining “desired” and credible conversion rates likely to reduce intermediate volatility (from May through December 1998), on the other. These two aspects are discussed below.

5. How is the convergence of market rates towards the “desired” conversion rates to be achieved?

Even if the European monetary authorities give markets a clue of conversion rates, they can hardly be assured that market rates will converge towards the desired level. Traders may indeed be tempted to test exchange rate parities before the latter are definitively frozen on 1 January 1999. For example, it may prove profitable to sell a currency forward. Forward currency sales have an impact on market rates, so much so that traders are assured that they will be able to meet the contract by purchasing the currency at a lower rate, for by that time rates will be definitively frozen. Hence, destabilising currency movements, pushing market rates away from the desired conversion rates on 31 December 1998, cannot be ruled out.

The monetary authorities, therefore, need to define a strategy aimed at discouraging this kind of exchange rate manipulation. When they announce the “desired” conversion rates, they will have to warn financial markets that they are committed to making concerted and unlimited interventions at the end of 1998 to achieve the convergence of market rates towards the “desired” conversion rates.

This strategy is likely to reduce the appeal of any speculation attempt, for it holds a credible threat to potential speculators (11). Indeed, in such a scenario, the two prerequisites for a successful speculation are not met. Usually, speculative attacks succeed when central banks have but limited means to intervene, while the time horizon for speculation is unlimited. However, where EMU is concerned:

• Central banks’ resources will be unlimited, since they will be able to sell currencies forward, in the knowledge that once in EMU, they will repay in euro.
• The timeframe for speculation is limited to 31 December 1998. Central bank interventions will therefore not put an intolerable long-term burden on the economy. Unlike the case when speculative attacks over an unlimited time horizon are directed at the currency of a country which is in reces-

---

11. In game theory, the solution where there is no speculation represents an equilibrium.
sion, the tightening of monetary policy to defend the currency only increases speculation because interventions are not sustainable in the long run.

6. What clues?

The announcement by the monetary authorities could take two forms. They could announce either the method they will use to freeze parities (for instance, a weighted or unweighted average of exchange rates over a given period), or the conversion rates for each currency. We shall examine these two scenarios and attempt to determine which best satisfies the three-fold constraint referred to in section 4.

6.1 Announcing that an average will be used

The monetary authorities could announce that they will use an average to freeze the parities definitively on 1 January 1999, as suggested by Alexandre Lamfalussy, the first president of the European Monetary Institute. Disregarding the practical details of this method, it presents a major drawback, for it requires a broad political consensus among the “in” countries to determine the computation method (weighted or unweighted average) and the reference period (1-year, 2-year ... average, including 1998 or not?). Moreover, the Maastricht Treaty (art. 109L) requires unanimity among the “ins” to freeze the exchange rate parities.

Apart from these drawbacks, two matters remain to be defined. When should the method be announced, and what reference period should be used? A number of scenarios are possible.

When should the method be announced?

The monetary authorities could announce their intention to use an average on the very day they designate the “ins”. However, this method is likely to increase exchange rate volatility between the time of the announcement and the definitive freezing of parities (12) if average exchange rates in the past appear to be significantly away from market rates at the time of the announcement (see figure 2). Once it is announced that the average method will be used, the past average of exchange rates will suddenly become a determinant of market rates at the time of the announcement. Market rates will then be forced to adjust so as to ensure the convergence towards the moving average.

Once it is announced that the average method will be used, the past average of exchange rates will suddenly become a determinant of market rates at the time of the announcement.

Figure 2. The case of the Irish punt

Let us assume that the current exchange rate depends, on the one hand, on an outside (e.g. political) factor and, on the other hand, on expectations regarding future exchange rates (see figure 3). If an unexpected shock occurs affecting the current exchange rate (1), this shock will have the immediate effect of influencing the expected conversion rate, which is the average of the current exchange rate and anticipated future exchange rates (2). Modifying the expected conversion rate then triggers a knock-on effect: it spreads to the exchange rates expected for the periods between the shock and the freezing of parities (3), to ultimately modify the current exchange rate (4) and so on. The conversion rate acts in a way as a mirror in which the shock is reflected.

**Figure 3. Volatility caused by using an average**

If the method is announced too early, there is the risk of greater volatility on foreign exchange markets.

The further the shocks are from the date of the freezing of parities, the more they are likely to affect the future exchange rates and, therefore, lead to turmoil on foreign exchange markets. In this scenario, the final conversion rates will take account of movements that are completely independent of economic developments. If the method is announced too early, this involves the risk of greater volatility on foreign exchange markets.

One solution would be to take the financial markets completely by surprise. The monetary authorities could limit the period of potential turbulence by announcing the method used at a later stage in 1998. In this scenario, the volatility would be lower, since the final conversion rates would to a large extent depend on past exchange rates, unless the markets started to speculate about the method to be used to freeze parities (see 3.2.).

Yet the solution of announcing the use of the average at a later stage, however appealing, does not solve the problem of volatility associated with the announcement itself. If the past average deviates strongly from market rates on the day of the announcement, the convergence towards that level will be achieved at the cost of a strong volatility and/or a significant shock. However, as pointed out by Schlesinger, Gros and Lannoo (1996), this would entail major losses for some European citizens which would be hard to reconcile with the often repeated statements that EMU is not a monetary reform.

**What reference period should be used?**

Using an average calculated over a number of years raises the question of the economic justification for the reference used. This question is important for currencies which have experienced bouts of weakness or strength unwarranted by fundamentals and whose conversion rates would take account of these bouts.
Shortening the reference period (to six months, for instance) is no panacea either. Aware that the rates will be frozen on the basis of an average calculated over a short period, financial markets might be tempted to speculate. The shorter the period, the greater their influence over the final conversion rates. Apart from increasing volatility, this scenario would require ongoing interventions by the central banks throughout the reference period, which appears unsustainable.

The average triggers some intermediate volatility

The above analysis shows that, although credible, the average approach may well lead to exchange rate movements which are independent of any improvement or deterioration in the fundamentals. Volatility would therefore not be eliminated by announcing an average but, on the contrary, would be endogenous to the method. Using the average would therefore comply only to a very small extent with the three-fold constraint referred to in section 4, namely using market rates as a reference for fixing the conversion rates, freezing the exchange rates at levels that are sustainable over the long term, and reducing exchange rate volatility. Hence, we feel that this option can be ruled out.

6.2 Announcing objective conversion rates

An alternative to the average scenario could be for the monetary authorities to announce “desired” conversion rates. The announcement of conversion rates can, however, only relate to the bilateral exchange rates, as the exchange rates of the currencies of the “ins” vis-à-vis the ECU on 31 December 1998 will also depend on the exchange rate against the ECU of the currencies which will not be joining EMU. In any case, bilateral parities are politically and economically the most sensitive.

The advantages of announcing objective conversion rates

This method provides some attractive advantages. It eliminates intermediate volatility, provided that the announced conversion rates are credible. Financial markets cannot influence the objective conversion rates announced by the monetary authorities. Moreover, the announcement of concerted and unlimited central bank interventions at the end of 1998 makes any intermediate turbulence on foreign exchange markets unprofitable, as it is a credible threat to potential speculators (13). Indeed, the latter do not stand to benefit from driving market rates away from the objective rates, for central bank interventions guarantee their convergence by 31 December 1998.

The only potential source of turbulence stems from an excessive spread between the objective exchange rates and market rates at the time of the announcement of the method. In that event, it would be possible, for example, to borrow Belgian francs and buy pesetas over a six-month period without any exchange risk. Assuming that there is still a differential between the six-month Belgian franc rate and the six-month peseta rate in 1998, there would be opportunities for arbitrage. If the markets are efficient, arbitrage should equalise the expected returns in Belgian francs and pesetas until forward exchange rates (end 1998) match central rates. This adjustment would occur immediately after the announcement.

13. In game theory, the solution where there is no speculation represents an equilibrium.
What conversion rates?

Although there are many possibilities, bilateral central rates seem an attractive choice.

Bilateral central rates in the ERM are already the subject of a broad political consensus. Choosing another parity grid would require endless political discussions between the "in" countries, without any guarantee of credibility. The lengthy negotiations on the central rate of the lira in November 1996 show the importance granted to central rates by the Council of Ministers.

Central rates are credible, in our opinion, in so far as the countries do not show major imbalances. Current divergences in external accounts are attributable to differences in domestic demand (except for the Irish punt). Moreover, most currencies are currently trading close to their central rates, with little divergence in the levels of money market rates. This, in fact, eliminates the threat of potential turbulence as explained above (again, except for the Irish punt).

Lastly, we believe that central rates correctly reflect the fundamentals of the economies, for they are close to their PPPs in D-Mark, as can be seen from table 1 (leaving the debate on PPP computations aside).

Table 1. Bilateral central rates and PPPs vis-à-vis the D-Mark (14)

<table>
<thead>
<tr>
<th></th>
<th>ATS</th>
<th>DKK</th>
<th>FIH</th>
<th>FRF</th>
<th>NLG</th>
<th>ESP</th>
<th>ITL</th>
<th>SEK</th>
<th>BEF</th>
<th>GBP</th>
<th>IEP</th>
<th>PIE</th>
<th>GRD</th>
<th>LUF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market rates</td>
<td>7.04</td>
<td>3.81</td>
<td>3.00</td>
<td>3.38</td>
<td>1.13</td>
<td>84.37</td>
<td>979.40</td>
<td>4.47</td>
<td>20.63</td>
<td>2.84</td>
<td>2.61</td>
<td>100.80</td>
<td>158.15</td>
<td>20.63</td>
</tr>
<tr>
<td>Central rates</td>
<td>7.04</td>
<td>3.81</td>
<td>3.04</td>
<td>3.35</td>
<td>1.12</td>
<td>85.07</td>
<td>990.00</td>
<td>-</td>
<td>20.63</td>
<td>-</td>
<td>2.41</td>
<td>102.51</td>
<td>-</td>
<td>20.63</td>
</tr>
<tr>
<td>PPP (BBL calculation)</td>
<td>7.76</td>
<td>3.88</td>
<td>2.74</td>
<td>3.27</td>
<td>1.09</td>
<td>80.80</td>
<td>923.93</td>
<td>3.78</td>
<td>20.53</td>
<td>2.84</td>
<td>2.72</td>
<td>105.62</td>
<td>159.59</td>
<td>20.45</td>
</tr>
<tr>
<td>Spread between the central rate and PPP (in %)</td>
<td>4.57</td>
<td>1.79</td>
<td>-10.0</td>
<td>-2.46</td>
<td>-3.05</td>
<td>-3.07</td>
<td>-7.14</td>
<td>-0.46</td>
<td>-12.7</td>
<td>3.04</td>
<td>-0.84</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Harmonised unemployment rate (in %)</td>
<td>4.6</td>
<td>6.9</td>
<td>15.7</td>
<td>12.4</td>
<td>6.3</td>
<td>22.2</td>
<td>12.0</td>
<td>10.0</td>
<td>9.8</td>
<td>8.2</td>
<td>12.3</td>
<td>7.3</td>
<td>9.1</td>
<td>3.3</td>
</tr>
</tbody>
</table>

Source: Datastream, Eurostat, BBL computations.

For certain countries, in particular the peripheral countries, the difference between the central rate and the PPP is greater, which suggests that they could enter EMU at a favourable rate if they were to be part of the first wave of countries to join EMU. This aspect is also important for the success of EMU, since it is these countries, after all, which had to make the biggest effort to achieve convergence (see section 3).

14. The purchasing power parity used is the relative PPP. The relative PPP calculates the exchange rate at which the price of a basket of goods in the domestic currency is identical to the price of the same basket of goods expressed in a foreign currency, with account being taken of variations in price levels.

The purchasing power parity is calculated as follows: PPP = $E_D \cdot \frac{(P_{\text{dt}}/P_{\text{d0}})}{(P_{\text{ft}}/P_{\text{f0}})}$

where $E_D$ = the average exchange rate of the currency since 1973, measured in terms of units of foreign currency per unit of domestic currency

$P_{\text{dt}}$ = the level of the foreign prices at time t

$P_{\text{d0}}$ = the average level of the foreign prices since 1973

$P_{\text{ft}}$ = the level of the domestic prices at time t

$P_{\text{f0}}$ = the average level of the domestic prices since 1973
The announcement that bilateral central rates will be used as conversion rates and that central banks will conduct concerted and unlimited interventions at the end of 1998 is the most credible method to secure a smooth convergence of market rates towards these conversion rates on 31 December 1998. Moreover, this method guarantees a freezing of exchange rate parities at levels warranted by fundamentals, while it also eliminates all exchange rate volatility during the run-up period and on the eve of the launch. Once the strategy is spelled out, arbitrage traders will immediately implement the convergence of forward rates towards central rates.

7. Conclusion

On 1 January 1999 Europe will turn a page in its history when, through the political will of a majority of its member countries, it will acquire a single currency, whose success will not depend solely on meeting the convergence criteria.

While the core countries have achieved a sufficient degree of micro- and macroeconomic convergence to create a monetary union, this is probably not the case for the peripheral countries. It is therefore a matter of facilitating to the utmost the transition of these countries towards EMU so as to give this broadly-based monetary union every chance of success.

From this point of view, freezing exchange rate parities on 1 January 1999 is a crucial factor. The Maastricht Treaty does not, in fact, fully guarantee that the exchange rates of the “in” currencies will be frozen at levels that are economically justified. If the monetary authorities confine themselves solely to the Maastricht Treaty provisions, the door is open to speculation and freezing of the parities at unrealistic levels.

The monetary authorities must therefore adopt a strategy with a twofold objective: to limit financial market volatility, and to guarantee the credibility of the conversion rates. Our analysis suggests that when the “ins” are designated, the monetary authorities should announce that they will use central rates, rather than an average of past exchange rates, as the conversion rates. Central rates are credible, justified by the fundamentals and are already the subject of a broad political consensus. At the same time, the authorities should announce that they will intervene in a concerted and unlimited manner at the end of 1998 in order to achieve convergence between the market and the central rates. This strategy should ensure that any attempt at speculation is not worthwhile, since it constitutes a credible threat to potential speculators. Accordingly, participating countries are likely to operate with near-fixed exchange rates as from May 1998.
References


Appendix 1

The external value constraint is subject to interpretation. Is it necessary to guarantee that, between D day (1 January 1999) and D day - 1, 1 ECU in terms of currency x is equal to 1 euro in terms of that currency, whatever x is, or solely with regard to non-EMU currencies (such as the dollar)? Let us look at the case where “external value” applies to all currencies, including those of the “in” countries.

On 31 December 1998 the ECU’s external value against the dollar will be:
\[ p.a + \Sigma (p_i.a) / b_i \] \( \forall i \in [1; 11] \)

where \( p_i \) represents the weight of each currency in the ECU
\( a \) is the DEM/$ rate on D day-1
\( p \) is the weight of the DEM in the ECU
\( b_i \) denotes the rate of each currency represented in the ECU against the DEM on D day-1

\( \) (expressed in number of currencies per DEM)

On 1 January 1999, according to the Maastricht Treaty, the euro’s value in terms of any currency (non-EMU and “in”) will not be able to be modified in relation to its external value on 31 December 1998. Is it possible to find exchange rates other than the market rates on 31 December 1998 while at the same time respecting the “external value” constraint vis-à-vis “in” and “out” currencies?

The various constraints of the problem are as follows:

1. The euro’s external value must be guaranteed:
\[ 1 \text{ ECU} = p.a + \Sigma \left( p_i.a \right) / b_i = 1 \text{ euro} = w.c + \Sigma \left( w_i.c \right) / d_i \] \( \forall i \in [1; 11] \) (1)

where
\( c \) is a DEM/$ exchange rate
\( w \) is a DEM weight in the ECU such that \( w \neq p \)
\( d_i \) denotes the rate of each currency represented in the ECU against the DEM
\( w_i \) is a weight for each currency in the ECU such that \( w_i \neq p_i \) \( \forall i \in [1; 11] \)

2. The rate of the constituents of the ECU in terms of the ECU must be frozen:
\[ [w.c + \Sigma \left( w_i.c \right) / d_i] / c = [p.a + \Sigma \left( p_i.a \right) / b_i] / a \] \( \forall i \in [1; 11] \) (2)

3. The rate of the DEM in relation to the ECU must be frozen:
\[ [w.c + \Sigma \left( w_i.c \right) / d_i] / c = [p.a + \Sigma \left( p_i.a \right) / b_i] / a \] (3)

These three constraints may be expressed more simply:

By combining (1) and (2), one obtains: \( d_i / c = b_i / a \) \( \forall i \in [1; 11] \) (4)

By combining (1) and (3), one obtains: \( c = a \) \( \forall i \in [1; 11] \) (5)

By combining (4) and (5), one obtains: \( d_i = b_i \) \( \forall i \in [1; 11] \) (6)

Relationships (5) and (6) imply that it is impossible to find exchange rates other than the market rates of 31 December 1998 if the “external value” constraint applies equally to the “in” currencies and the “out” currencies.

Given (5) and (6), (1) becomes:
\[ p + \Sigma \left( p_i / b_i \right) = w + \Sigma \left( w_i / b_i \right) \] \( \forall i \in [1; 11] \)
Appendix 2

Is it possible to find exchange rates other than market rates on 31 December 1998, while meeting the external value constraint against the dollar?

\[1 \text{ ECU} = p_i + \sum(p_i \cdot a) / b_i = 1 \text{ euro} = w_c + \sum(w_i \cdot c) / d_i \quad \forall i \in [1; 11] \] (1)

where

- \(c\) is a DEM/$ exchange rate
- \(w\) is a DEM weight in the ECU such that \(w_i \neq p\)
- \(d_i\) denotes the rate of each currency represented in the ECU against the DEM
- \(w_i\) is a weight for each currency in the ECU such that \(w_i \neq p_i\) \(\forall i \in [1; 11]\)

One constraint is added to this problem:

The Maastricht Treaty requires the weightings in the ECU to be frozen (Article 109G):

\[p = w \quad \forall i \in [1; 11] \] (2)

Given constraint (2), expression (1) becomes:

\[p_i = w_i \quad \forall i \in [1; 11] \]

Hence, it is theoretically possible to find exchange rate parities other than the market rates as at 31 December 1998 so as to meet the external value constraint. Determining a new parity grid also assumes that a dollar/D-Mark level can be found other than the prevailing rate on 31 December 1998. This likelihood seems remote, however, for the D-Mark and the dollar operate in a perfectly flexible exchange rate system.

Let's suppose a stable DEM/$ exchange rate:

\[a = c \]

Given constraint (4), expression (3) becomes:

\[p_i = \frac{\sum(p_i \cdot a) + \sum(p_i \cdot a)}{b_i} \quad \forall i \in [1; 11] \]

\[\sum p_i / b_i = \sum \frac{p_i}{d_i} \quad \forall i \in [1; 11] \]

\[b_i = d_i \]

In other words, it is impossible to choose rates other than the market rates of 31 December 1998 (supposing a stable D-Mark/dollar exchange rate) without resorting to changes in the weightings, which is ruled out by the Maastricht Treaty.
At the Madrid Summit in December 1995, the EU heads of state or government endorsed a three-phase plan for the introduction of the single currency. The purpose of this essay is to identify how, besides an obvious fall in revenue from intra-European currencies trading, a single currency will alter fundamentally and permanently European banking markets. A common currency will change the sources of competitive advantage in various markets such as those of government bonds and their fast growing appendices the interest rate derivative markets, of corporate bonds and equities, of foreign exchange, and of fund management. The paper evaluates whether an international reserve currency status matters for European banks, and concludes with an assessment of the impact of the single currency on loan credit risk and on bank profitability in a low inflation environment.

Jean Dermine is Professor of Banking and Finance at INSEAD and director of its International Financial Services programme. A citizen of Belgium, he received his MBA from Cornell University (1978) and his Doctoral Degree in Economics from the Catholic University of Louvain (1982).

Jean Dermine has been Visiting Professor at the Wharton School of the University of Pennsylvania, at the Universities of Louvain and Lausanne, a Salomon Center Visiting Fellow at New York University and a Danielsson Foundation Guest Professor of Bank Management at the Göteborg and Stockholm Schools of Economics. He is the author of two books and numerous publications on European banking markets and asset-liability management, and serves as an associate editor of the Journal of Banking and Finance.
1. Introduction

The Maastricht Treaty on European Union provides for the introduction of a single currency by January 1st, 1999 at the latest. Although a large series of papers have been concerned with macroeconomic issues such as price stability or employment, very few studies have discussed the impact of a single currency on the competitive structure of European banking markets. One question is being addressed in this essay: How does the move from national currencies to the euro alter the sources of competitive advantage of banks, creating a new Eurobanking world?

A casual analysis of the structure of the banking industry raises the question of the importance of a national currency factor. For instance, the markets for pension funds and mutual funds management, or the Euro-Francs and Euro-Lira bond markets are quite fragmented with domestic institutions capturing a very large market share. Although this fragmentation is explained in part by regulations and history, it could reflect the importance of national currencies. Another example is the leading role of American institutions in the dollar-denominated Eurobond market. Will the emergence of a new world currency competing with the US dollar help the competitiveness of European banks? This essay will attempt to show how, besides an obvious loss of intra-European currencies trading business, the introduction of a common currency will change fundamentally the sources of competitive advantage of banks.

Eight impacts are identified and analysed. The first six concern capital markets, including the government bond market and its fast growing appendix the interest rate derivative market, the corporate bond and equity market, institutional fund management, the Euromarket, the foreign exchange market, and the competition between the euro and the US dollar as international reserve currencies. The last two effects concern commercial banking with the impact of the single currency on credit risk and on bank profitability in a low inflation environment.

2. The government bond market, underwriting and trading

A first observation is that the arrival of a common currency will create the need for a single risk-free interest rate yield curve, matching interest rates to maturities, to act as an anchor for the pricing of securities. A unique characteristic of the single European market is the absence of a federal debt, the price of which could help to derive a yield curve. It will be left to market forces to choose the national government bonds that will qualify as risk-free bonds. Six candidates are the bonds of those countries that have a AAA rating [1].

---

1. Austria, France, Germany, Luxembourg, Netherlands and the United Kingdom.
A direct impact of the creation of a European risk-free yield curve will be the consolidation of the fast growing derivative industry. Indeed, as very few instruments are needed to ride a yield curve in a particular market, the single currency implies that there will be a need for only a few euro-based interest rate instruments. Table 1 reports that the number of interest rate futures contracts traded in Europe in the first eight months of 1996 reached 154 million, fairly close to the 158 million contracts traded in the USA. If the American case is a guide, there is little doubt that the nineteen European interest rate future contracts will be replaced by a few euro-rate contracts. Since the economics of clearing houses is based on netting of positions and pooling of counterparty risks, it will be efficient to merge the different clearing houses into one to facilitate the accounting and netting mechanisms. If the consolidation of the short term part of the interest rate derivative market is extremely likely, a doubt subsists for the longer term segment for which credit risk premia could differ. Indeed, in a single currency zone, it will not be possible anymore to print money to avoid a default on domestic debt. The existence of credit risk premia on some government bonds could create a need for a derivative market to trade sovereign credit risk. However, if one does observe spreads on bonds in other economic and monetary federations, exchange-traded derivatives on such spreads do not exist yet.

Table 1. Interest rate futures

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Exchange</th>
<th>1996 volume [000's]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(January-August)</td>
<td>N° of Contracts Traded</td>
</tr>
<tr>
<td>Belgian Bond</td>
<td>Belfast</td>
<td>286</td>
</tr>
<tr>
<td>90-day Bibor</td>
<td>Belfast</td>
<td>108</td>
</tr>
<tr>
<td>German Bund</td>
<td>DTB</td>
<td>10,364</td>
</tr>
<tr>
<td>German Bebl</td>
<td>DTB</td>
<td>11,937</td>
</tr>
<tr>
<td>German Bund</td>
<td>Liffe</td>
<td>26,399</td>
</tr>
<tr>
<td>German Euromark</td>
<td>Liffe</td>
<td>24,907</td>
</tr>
<tr>
<td>Danish Medium Bond</td>
<td>Futop</td>
<td>26</td>
</tr>
<tr>
<td>Danish Long Bond</td>
<td>Futop</td>
<td>128</td>
</tr>
<tr>
<td>Long Gilt</td>
<td>Liffe</td>
<td>9,408</td>
</tr>
<tr>
<td>Sterling</td>
<td>Liffe</td>
<td>9,884</td>
</tr>
<tr>
<td>Euro-Swiss</td>
<td>Liffe</td>
<td>2,120</td>
</tr>
<tr>
<td>Italian Bond</td>
<td>Liffe</td>
<td>7,740</td>
</tr>
<tr>
<td>Eurolira</td>
<td>Liffe</td>
<td>4,045</td>
</tr>
<tr>
<td>10 Ys Italian</td>
<td>Motif</td>
<td>1,349</td>
</tr>
<tr>
<td>10 Ys French</td>
<td>Motif</td>
<td>22,805</td>
</tr>
<tr>
<td>Pibor</td>
<td>Motif</td>
<td>9,745</td>
</tr>
<tr>
<td>ECU Bond</td>
<td>Matif</td>
<td>378</td>
</tr>
<tr>
<td>10 Ys Pesetta</td>
<td>Meff RF</td>
<td>11,241</td>
</tr>
<tr>
<td>MIBOR</td>
<td>Meff RF</td>
<td>827</td>
</tr>
<tr>
<td>Total EU</td>
<td></td>
<td>154,364</td>
</tr>
<tr>
<td>Total USA</td>
<td>CBOT+CME</td>
<td>158,409</td>
</tr>
<tr>
<td>Total Japan</td>
<td>TFFE</td>
<td>29,115</td>
</tr>
</tbody>
</table>

Source: Futures and Option World, October 1996
A second observation about the government bond market in Europe is that, in many countries, it is very much a fragmented market with domestic players capturing a large market share of the underwriting and secondary trading business. This raises the question of the sources of competitive advantage for local banks.

As concerns the underwriting and trading of government bonds, Feldman-Stephenson (1988), a Federal Reserve Study (1991), and Fox (1992) show that the dominance of local players is the result of three main factors. The first is historical with local players having a privileged access to the public debt issuer; the second is domestic currency denomination which facilitates the access to a large investor home base, providing a significant advantage not only in placing, but also in understanding the demand/supply order flows. Finally expertise in the domestic monetary environment provides essential information to operate on the secondary bond market.

Will these sources of competitive advantage survive with a single currency? As domestic currency denomination, the main source of competitive advantage identified for local banks in the literature, will disappear, it is quite likely that we shall observe the emergence of a truly integrated European bond market. If access to information on the supply/demand order flows seems essential for secondary trading, then very likely operations at the European-wide level will become a necessity and one will observe a consolidation of the government bond underwriting and trading businesses. As a tentative base for comparison, it is symptomatic to observe in Table 2 that the top ten American underwriters of investment grade debt control 87% of the market.

Table 2. Top underwriters of investment grade in USA (1996)

<table>
<thead>
<tr>
<th>Manager</th>
<th>1996 ECU bn</th>
<th>Market Share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Merrill Lynch</td>
<td>79</td>
<td>18.3</td>
</tr>
<tr>
<td>Salomon Brothers</td>
<td>54</td>
<td>12.5</td>
</tr>
<tr>
<td>Goldman Sachs</td>
<td>46.9</td>
<td>10.8</td>
</tr>
<tr>
<td>JP Morgan</td>
<td>45</td>
<td>10.4</td>
</tr>
<tr>
<td>Lehman Bros</td>
<td>43.7</td>
<td>10.1</td>
</tr>
<tr>
<td>Morgan Stanley</td>
<td>40.8</td>
<td>9.4</td>
</tr>
<tr>
<td>CSFB</td>
<td>29</td>
<td>6.7</td>
</tr>
<tr>
<td>Bear Stearns</td>
<td>29</td>
<td>3.1</td>
</tr>
<tr>
<td>Smith Barney</td>
<td>12.8</td>
<td>3.0</td>
</tr>
<tr>
<td>NationsBank</td>
<td>12.3</td>
<td>2.8</td>
</tr>
</tbody>
</table>

Source: Securities Data Co.

3. The corporate bond and equity markets, underwriting and trading

As is the case for government bonds, a key issue concerns the sources of competitive advantage of local institutions in corporate bond and equity underwriting and secondary trading. As explained earlier, customer relationship, assessment of credit risk, and currency of denomination are critical.
sources of competitive advantage. The Eurobond market presents an interesting case. The study by the Federal Reserve Bank of New York (1991) reports a strong correlation for non-dollar issues between the nationality of investors and that of the lead bank manager. This is confirmed by Tables 3a-b which show that with very few exceptions the lead manager in the Eurobond market in France and Italy were invariably local institutions. The domestic currency denomination facilitating the access to an home-investor base was a key-source of competitive advantage for placement but also for secondary trading. Moreover, an understanding of local monetary policy would give a competitive advantage to understand price movements. The leading role of American institutions in the dollar-denominated Eurobond market is explained not only by large issues by American companies, by their expertise developed in their home corporate securities markets, but also by the important advantage linked to the dollar denomination of many bonds. Indeed, access to home investors, and an understanding of US order flows and US monetary policy provide a decisive advantage in secondary trading as it helps to predict price movements.

**Table 3a.** French francs gross euro-issues

<table>
<thead>
<tr>
<th>Top 10 Lead Managers, 1993</th>
<th>ECU bn</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crédit Commercial de France</td>
<td>8.9</td>
</tr>
<tr>
<td>Paribas</td>
<td>8.6</td>
</tr>
<tr>
<td>Société Générale</td>
<td>7.2</td>
</tr>
<tr>
<td>Crédit lyonnais</td>
<td>6.0</td>
</tr>
<tr>
<td>BNP</td>
<td>4.6</td>
</tr>
<tr>
<td>CDC</td>
<td>1.0</td>
</tr>
<tr>
<td>SBC</td>
<td>0.9</td>
</tr>
<tr>
<td>JP Morgan</td>
<td>0.7</td>
</tr>
<tr>
<td>Deutsche Bank</td>
<td>0.7</td>
</tr>
<tr>
<td>Merrill Lynch</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Source: The Capital Markets Yearbook, Euromoney, March 94

**Table 3b.** Italian lira gross euro-issues

<table>
<thead>
<tr>
<th>Top 10 Lead Managers, 1993</th>
<th>ECU bn</th>
</tr>
</thead>
<tbody>
<tr>
<td>San Paolo</td>
<td>1.9</td>
</tr>
<tr>
<td>Deutsche Bank (1)</td>
<td>1.8</td>
</tr>
<tr>
<td>IMI</td>
<td>1.6</td>
</tr>
<tr>
<td>BCI</td>
<td>1.5</td>
</tr>
<tr>
<td>Banca di Roma</td>
<td>1.3</td>
</tr>
<tr>
<td>Credito Italiano</td>
<td>1.3</td>
</tr>
<tr>
<td>BNL</td>
<td>1.2</td>
</tr>
<tr>
<td>JP Morgan</td>
<td>0.6</td>
</tr>
<tr>
<td>Paribas</td>
<td>0.6</td>
</tr>
<tr>
<td>HSBC</td>
<td>0.5</td>
</tr>
</tbody>
</table>

Source: The Capital Markets Yearbook, Euromoney, March 94

1. Italian subsidiary, purchased from Bank of America Italy.
A single currency in Europe will change fundamentally the competitive structure of the corporate bond and equity markets as one key-source of competitive advantage, namely home currency, will disappear. Indeed, savers will diversify their portfolio across European markets, the exchange rate risk being eradicated. Moreover, a single currency will suppress the secondary trading advantage for domestic banks derived from a better understanding of order flows and monetary policy in the domestic country. Therefore, the two main sources of comparative advantage remaining for local players will be historical customer relationship and the understanding of credit risk through a better knowledge of the accounting, legal, fiscal (not to mention language) environment. Whenever the credit risk embedded in corporate securities can be better assessed by domestic banks, these players will control underwriting and secondary trading. However, another factor could alter the corporate underwriting business. The emergence of internationally-accepted ratings will reduce the competitive advantage of domestic banks in evaluating credit risk and managing securities.

To conclude this analysis of the impact of a single currency on the corporate bond and equity markets, it seems that customer relationship and an understanding of credit risk could remain two sources of strength for domestic firms in some segments of the market. But, placing power and trading across Europe are forces that lead to consolidation as the national currency advantage will have disappeared.

4. Fund management

An important segment of capital markets business is the fund management industry, pensions funds or mutual funds. As Table 4 illustrates for the United Kingdom, it is symptomatic to see the total dominance of the fund management industry by local firms (2). Similarly in France, the ten largest players in the SICAV industry are all French institutions. In view of this extreme fragmentation, specially in comparison with other segments of the capital markets, one may wonder about the impact of the single currency on the fund management industry. In this case too, an understanding of the main sources of competitive advantage needs to be developed. They concern the retail distribution network, the home-currency preference, research expertise, and the existence of economies of scale (Kay, Laslett, Duffy, 1994). The first source of competitive advantage in the retail segment is the control of the distribution network, in the hand of local banks in several countries. Domestic control of distribution is even protected under current European legislation which gives national authorities the right to regulate the marketing of funds into their territory. Obviously the advantage derived from the control of the distribution network applies to retail investors only, and it will not be a barrier of entry in the institutional market. A second source of competitive advantage was the customer preference for home-currency assets, often imposed by regulation. A single currency will of course eliminate this factor and reinforce the need for European-wide portfolios. A large part of these will be provided by index-tracking investment funds. A third source of success is excellence in research-based management. It would seem that domestic expertise in the assessment of performances of local corporate firms could still be a source of competitive advantage for local institutions supplying specialized funds. As to the

2. Some of these, such as Barings or Morgan Grenfell, have been purchased recently by continental firms.
existence of economies of scale and scope in the fund management industry, it is still a subject of debate. Again, if the American market is a useful guide, it appears that size is important as the five largest fund managers control 41% of the fund management business.

**Table 4. Fund managers UK 1995**

<table>
<thead>
<tr>
<th>ECU bn</th>
<th>Market share (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>BZW (1)</td>
<td>240</td>
</tr>
<tr>
<td>Prudential</td>
<td>115</td>
</tr>
<tr>
<td>MAM</td>
<td>182</td>
</tr>
<tr>
<td>Schroder</td>
<td>104</td>
</tr>
<tr>
<td>Morgan Grenfell</td>
<td>86</td>
</tr>
<tr>
<td>Fleming</td>
<td>79</td>
</tr>
<tr>
<td>PFOM/UBS</td>
<td>68</td>
</tr>
<tr>
<td>NatWest</td>
<td>48</td>
</tr>
<tr>
<td>Baring</td>
<td>37</td>
</tr>
<tr>
<td>Gartmore</td>
<td>35</td>
</tr>
</tbody>
</table>

1 Merger of BZW and Wells Fargo Nikko Invest Advisors.

A single currency will eliminate the obstacle to international diversification. One will observe quite likely very large low-cost European index-tracking funds competing with smaller research-based funds. On the retail distribution side, domestic banks will keep their competitive advantage as long as the branch network remains a significant channel of distribution.

**5. The euro-deposit market and cross-border payments**

An extremely efficient Euro-deposit market was created thirty years ago to circumvent various forms of domestic regulations (3). An important issue concerns the size and coverage of the reserve requirement on euro-denominated deposits in the future (4). Indeed, foreign currency-denominated deposits are not subject currently to reserve requirements in most countries. More important, but unrelated to the single currency, will be the fiscal treatment of the income earned on these assets in the future.

Another dimension of Euro-banking is the cross-border payment system and the current role of correspondent banks. The current situation is that international payments are done through the accounts of banks in foreign countries and through the various national clearing systems. The European Monetary Institute has provided some indications on the future European payment system. In essence, it favors a decentralized national-based system complemented by TARGET (5), a linkage between the various national real-time gross settlement systems. Only the payments related to monetary policy will

---

3. Some creative wording will be needed as one must distinguish euro-deposit, deposits from non-residents, from euro-denominated deposits.
4. The European Central Bank may require credit institutions to hold minimum reserves on accounts with the National Central Banks (EMI, 1997).
5. TARGET: Acronym for Trans-European Automated Real-time Gross settlement Express Transfer system.
have to pass through TARGET. Other payments will have the choice between the direct ECB route, the traditional correspondent banking system, or alternative private cross-border clearing systems. If the role of correspondent banking is likely to be reduced, it seems that this movement would happen independently of the existence of a single currency for the sole reason that real-time cross-border payment facilities help to reduce settlement and payment risks.

6. Foreign exchange markets

A direct effect of the single currency is that not only intra-European foreign exchange transactions will disappear, but that the competitive advantage of a particular bank in its home currency vis-à-vis third country currencies will go as well. As an example, a Belgian bank operating in New York will not be anymore the Belgian franc specialist, but will compete with other European banks for euro/dollar business. As is the case for the government bond markets for which an understanding of the supply/demand order flows is important to assess the direction of price movements, one is likely to observe a consolidation of the commodity-type low cost spot foreign exchange business. Differentiated products based on quality of service or innovations such as options will be another source of competitive advantage.

7. Euro as an international currency: What benefits for the banks?

One of the asserted benefits of EMU is that the single currency will become a challenger to the US dollar as the dominant international currency used for units of accounts, store of value and means of payments (Emerson, 1990, Alogoskoufis-Portes, 1991, and Maas, 1995). But, one has to realize that contrary to a notional currency which is imposed as sole tender by national legislation, the role of an international currency is fixed by demand and supply on world capital markets. Two questions are being raised. Firstly, is the euro likely to compete away the US dollar in international financial markets? Secondly, from the perspective of this essay, what are the benefits derived for banks of having an international currency status for the euro?

Whether one look at the role of the dollar as a unit of account, a store of value, or a mean of payment, it still is today by far the prime international currency. For instance, 60% of the foreign exchange reserves of central banks are denominated in dollars, while US exports represent only 12% of world exports. As international bonds are concerned, Table 5 shows that 41% of them are denominated in US dollar. To assess the chance of the euro to accelerate the relative decline in the dollar, it is instructive to have a look at history and the relative fall of sterling and rise of the dollar in the international payment system.

In 1914 on the eve of the First World War, the City of London was indisputably the world’s leading international financial center, with the sterling pound the major international currency. According to economic historians, the weakness of the pound started with the first world war. The war of 1914-1918 saw the emergence of large bond financing in the USA. This was coupled with the events of 1931—the insolvency of the Creditanstalt in Vienna and the inconvertibility of the pound. The develop
The development of the second world war succeeded in increasing even more the statute of the dollar, which was confirmed in its international role by the 1944 Bretton Woods agreement (6). One can conclude that the rise of the dollar over a thirty years period was very much helped by the two world wars, and that despite the abandon of convertibility into gold in 1971 and continuous devaluation, the dollar is still maintaining twenty five years later a leading role as an international currency. Based on the recent two decades which have seen a progressive erosion of the dollar and a slow rise of the Deutshe Mark, in view of the relative economic size of Europe, and building on the potential for growth in the eastern part of Europe, one can extrapolate and forecast that euro will replace the D-Mark and be a strong competitor to the dollar. But in the author's opinion, any forecast on the relative importance of the US dollar and the euro in the future is premature and beyond our understanding.

Table 5. International bond issues (1996)

<table>
<thead>
<tr>
<th>Currency</th>
<th>ECU bn</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>USD</td>
<td>262</td>
<td>41.4</td>
</tr>
<tr>
<td>YEN</td>
<td>77</td>
<td>12.1</td>
</tr>
<tr>
<td>DEM</td>
<td>94</td>
<td>14.8</td>
</tr>
<tr>
<td>GBP</td>
<td>45</td>
<td>7</td>
</tr>
<tr>
<td>FRF</td>
<td>46</td>
<td>7</td>
</tr>
<tr>
<td>CHF</td>
<td>23</td>
<td>4</td>
</tr>
<tr>
<td>ITL</td>
<td>22</td>
<td>3</td>
</tr>
<tr>
<td>NGL</td>
<td>19</td>
<td>3</td>
</tr>
<tr>
<td>ECU</td>
<td>3.5</td>
<td>0.6</td>
</tr>
</tbody>
</table>


What are the implications for banks of having euro as an international currency? Three benefits can be identified. The first one is that an increased volume of euro-denominated assets or liabilities will ease the foreign exchange risk management of bank equity. Indeed, a large part of bank assets will be denominated in the same currency as the equity base, easing the control of currency-driven asset growth and capital management. Secondly, access to a discount window at the European Central Bank will make the liquidity management of euro-based liabilities marginally cheaper. Finally, if third countries issue assets denominated in euro or use the European currency as a vehicle, European banks will be well positioned in secondary trading for the reasons mentioned earlier.

8. EMU and loan credit risk

Many of the channels which have been identified concerned the money and capital markets. An additional impact of the euro is its potential effect on loan credit risk. There are reasons to believe that the nature of credit risk could change under a single currency. The argument is based on the theory of Optimum Currency Areas and on the objective of price stability inscribed in the Treaty on European Union.

6. According to McKinnon (1993), a key factor increasing the role of the dollar was the European Payment Union established in September 1950 for clearing payments multilaterally, using the US dollar as the unit of account and as the means of payment.
There is an old debate on the economic rationale that leads a group of countries to adopt a common currency [7]. The story is the following. The more countries are subject to asymmetric economic shocks, the more they would appreciate monetary autonomy to cancel the shock. Indeed, with symmetric shock there would be a consensus among the members of a currency union on economic policy, but with asymmetric shocks the policy run from the center may not be adequate to all the members of the union. Recent economic developments have strengthened the argument. For instance, one can wonder whether the rapid recovery enjoyed by British banks in 1994 has not been helped partly by the 1992 devaluation which has reduced somewhat a bad debt problem. Similarly, the devaluation of the Finnish Markka has helped the restructuring of the country after the collapse of one of its major clients, the Soviet Union. How could the introduction of a single currency affect credit risk? If a bank concentrates its business in its home country, and if that country is subject to asymmetric shocks, it is quite possible that a central monetary policy will not be able to soften the shock.

An indirect and interesting corollary of the Optimum Currency Area theory is that for banks operating in a single currency area, the need to diversify their loan portfolio increases the more their home country is likely to be subject to asymmetric (uncorrelated) shocks. This can be achieved through international diversification or the use of credit derivatives.

9. Banking in a low inflation environment

The last effect of a single currency discussed in this essay concerns the impact on bank profitability of doing business in a low inflation environment. Indeed, in the last twenty years, higher inflation and interest rates have provided substantial interest margins on price-regulated deposits. For instance, as is documented in Table 6 for the 1980-1985 period, interest margins on demand deposits were above ten percent in Belgium, France, Denmark or Spain. If new products, such as money market funds competed with these deposits, it is important to note that these demand and savings deposits represent still more than forty percent of client resources collected by banks in Belgium or France (Commission Bancaire, 1996; Banque de France, 1996). As Table 6 documents, margins on these products have been seriously eroded with the overall decrease in the interest rate level in recent years. One can safely conclude that an objective of monetary stability and low inflation pursued by an independent European Central Bank will reduce the source of profitability on the deposit funding business. However, if this effect is quite significant in a large number of countries, two additional effects of a low inflation environment might soften the impact of lower margins on deposits.

The first is that a low interest rate environment leads usually to much higher margins on personal loans because of the relative inelasticity of interest rate on personal loans. For instance, in France, loan rate stickiness has raised the margin on hire purchase (consumer) loan from 6.3% in 1990 to 10.1% in 1996, a period of rapidly declining market rates (Banque de France, 1996). A second positive impact of a low inflation environment is that the so-called 'inflation tax' will be much smaller (Fisher-Modigliani, 1978). A simple example will give the intuition beyond the inflation tax. Consider

---

Table 6. Interest margins of commercial banks

<table>
<thead>
<tr>
<th>Average margin on demand deposits (1)</th>
<th>Belgium</th>
<th>Denmark</th>
<th>France</th>
<th>Germany</th>
<th>Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1980-85) (%)</td>
<td>11.2</td>
<td>16.2</td>
<td>11.7</td>
<td>6.5</td>
<td>14.5</td>
</tr>
<tr>
<td>(1987-92) (%)</td>
<td>8.7</td>
<td>9.0</td>
<td>9.7</td>
<td>7.2</td>
<td>6.0</td>
</tr>
<tr>
<td>(1994-95) (%)</td>
<td>5</td>
<td>NA</td>
<td>6.1</td>
<td>4.8</td>
<td>3.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Average margin on savings deposits (1)</th>
<th>Belgium</th>
<th>Denmark</th>
<th>France</th>
<th>Germany</th>
<th>Spain</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1980-85) (%)</td>
<td>5.6</td>
<td>8.9</td>
<td>4.3</td>
<td>2.8</td>
<td>10.7</td>
</tr>
<tr>
<td>(1987-92) (%)</td>
<td>3.9</td>
<td>7.0</td>
<td>5.2</td>
<td>2.2</td>
<td>9.0</td>
</tr>
<tr>
<td>(1994-95) (%)</td>
<td>1.9</td>
<td>NA</td>
<td>1.6</td>
<td>2.9</td>
<td>5</td>
</tr>
</tbody>
</table>

Source: OECD
(1) Current short-term rate minus interest rate paid on deposits.

a case with no inflation in which equity is invested in a 3% coupon bond. After a thirty corporate tax is deducted, the revenue is 2.1% \((1-0.3) \times 3\%\). The full profit can be paid as dividend as there is no need for retained earnings and higher capital since there is no growth of assets. If because of a 10% inflation, the same equity is invested in a 13% coupon bond, the profit after tax is only 9.1% \((1-0.3) \times 13\%\), a figure too small to finance a necessary equity growth of 10%. No dividend can be paid in this case and equity holders have suffered from an "inflation-tax".

Therefore, the impact of a low inflation environment on the profitability of banks will depend on the relative importance of reduced margins on deposits, higher profit on personal loans and on the significance of the "inflation-tax".

10. Conclusions

The objective of the essay has been to identify the various ways through which a single currency would alter the sources of competitive advantage of European banks. Besides the obvious fall in revenue from intra-European currencies trading, the analysis has identified significant and permanent effects on several segments of the industry. One can forecast a rapid consolidation of the commodity-type business, government bonds, interest rate derivatives, and spot currency trading. This is motivated by the loss of a main domestic source of competitive advantage, namely the national currency.

If domestic expertise in the accounting, legal and fiscal environment will give a competitive advantage to domestic players in some segments of the corporate bond and equity markets, other factors such as placing power and trading capacity across Europe will lead to consolidation of that industry. On the fund management side, very large European-wide index-tracking funds will compete with specialized funds. As concerns the Euro-deposits market, the rules of monetary and fiscal policies still
The single currency will make irreversible the creation of a single European banking market.

Furthermore, one should highlight the obvious but important fact that the single currency will make irreversible the creation of a single European banking market. A more predictable environment will facilitate the exploitation of economies of scale and the optimal location of processing units.

If the premises underlying the above analysis are verified in the future, one can anticipate the creation of a new Eurobanking world. A major international consolidation of the European banking industry will take place in the capital market business, and further domestic rationalization of commercial banking will be needed. As a base of reference to estimate the potential savings created by consolidation, one observes that two countries with banking systems in distress in the early 1990's, Finland and Sweden, were able to reduce the number of bank branches by 39% and 27% respectively (BIS, 1996). Although this reduction of costs was achieved in the context of a banking crisis, it is illustrative of the potential gain in efficiency that could be realized.

The objective of the 1992 single market programme was to reinforce the efficiency and competitiveness of European firms. As concerns banking, it is a clear conclusion that the introduction of a single currency will not only make the creation of a single market irreversible, but that it will, besides the obvious fall in revenue from intra-European currencies trading, alter fundamentally the nature of several businesses. A new banking world will emerge with very different sources of competitive advantage. If this challenge is met successfully by European banks, there is little doubt that it will reinforce the competitiveness of European banks operating in the capital markets of third countries such as those of the United States, and of the rapidly expanding Asia.
References


European integration is a process that is built on solid economic interest. It is not like a bicycle that needs to remain in motion in order to be stable. Political initiatives are important because they have a multiplier effect: any agreement to reduce trade barriers will increase trade and therefore generate a demand for further reductions in trade barriers. But this process can reach a stable stationary equilibrium without putting the acquis in danger. Creating common institutions accelerates the process and should lead to more integration. The génie of the founding fathers was to combine the opening of markets with the creation of common institutions. This combination initiated the process that has brought us from a customs union to EMU.

Daniel Gros is the Deputy Director and a Senior Research Fellow at the Centre for European Policy Studies (CEPS). He has served on the staff of the IMF, as an advisor at the European Commission, and as visiting professor at the Catholic University of Louvain and the University of Frankfurt. He has advised the governments of Russia, Belarus and Ukraine on trade and exchange rate matters. He is co-author of European Monetary Integration: From the European Monetary System towards Monetary Union and of Winds of Change in Eastern Europe.
The dynamics of European integration

1. "L'Europe se fera par la monnaie ou elle ne se fera pas"

This famous dictum of Jacques Rueff is usually interpreted in relation to monetary integration. But it contains a much wider truth: Europe is built on solid economic interests. The on-going process of European integration of the last decades draws its fuel not from a reservoir of Euro-enthusiasm, but it can be understood as the outcome of a dynamic interaction of an imperfect political process and basic economic principles.

This paper shows how a dynamic process can develop within a simple model in which a politically motivated trade-liberalisation initiative can start a dynamic process of economic integration (e.g. the formation of a customs union or a free trade area) leading to more trade which, in turn, reinforces the demand for further lowering of trade barriers. The final outcome is a multiplier effect: Any exogenous trade liberalisation initiative that perturbs the initial political economy equilibrium will lead to further endogenous lowering of barriers so that the total impact can be much larger than the initial one. The model thus predicts that because of this multiplier, the pay-off from politically motivated integration initiatives will be large and long lasting as an initial success will be followed by a series of additional moves towards further integration.

The model also underlines the importance of institutional structures. Common institutions that organise and enforce efficiently a reciprocal opening accelerate the integration process and can have, over time, an even stronger impact on integration than any trade liberalisation move that is not accompanied by any institutional superstructure.

The analysis of this paper thus implies that the génie of the founding fathers was to combine the opening of markets with the creation of common institutions. At that time it required vision to imagine the profound consequences that could follow. It is not often appreciated that when the Treaty of Rome was prepared, trade among the original six was only a small proportion of their overall trade and even smaller proportion of their GDP. For France, which took the political initiative, exports to the other 5 EEC founding members accounted only for 22% of overall exports and about 3% of GDP in 1958 (1). It is thus difficult to maintain that the creation of the Common Market was motivated mainly by economic considerations.

The model presented here would imply, however, that the large increase in the importance of intra-EC trade that followed the creation of the common market increased the demand for further integration, thus reinforcing the European institutions and leading to further advances in the integration process. The internal market programme that started...
in the early 1980s and the current move towards EMU are the latest two examples of this process. This model implies that the existence of strong common institutions modified the domestic political economy equilibrium and quickened the dynamic process. Indeed during the almost four decades of the EC the share of exports going to the [enlarged] EU has tripled for France and their share in GDP has quintupled. The figures for Germany and the other member countries are similar.

This successful evolution of the Common Market can be contrasted to the fate of the EFTA, which did not have any institution and did not develop similar dynamics. A priori this was not a foregone conclusion since in 1958, a pan-European EFTA would have made more economic sense even for the founding members of the EEC (for France and Germany, it would have covered 37 and 59%, respectively, of their trade).

The impact of the EC on trade expansion within Europe is well known: Intra-trade increased enormously compared to overall trade and most econometric studies agree that trade between any pair of EU countries is between 50 and 100% higher than that between them and any similarly-placed third country (2). What is less often appreciated is that fact that for the EC members, trade with the rest of the world has been constant at around 9 - 10% of GDP since 1960. This is another indication that integration in the context of the EC was qualitatively different from global trade liberalisation.

To the extent that exchange rate variability also represents a barrier to trade, the self-reinforcing mechanism discussed below should also apply to monetary integration. The model could thus also contribute to an explanation of why EMU appeared on the agenda.

The remainder of this paper presents an extremely simplified model of the interaction between the impact of trade policy on trade flows and the political economy forces that act on trade policy. The terms "trade liberalisation" and "integration" are used interchangeably here although they are not really synonymous. Both terms are supposed to cover any measure that reduces the cost of trade: the elimination of quotas, the reduction of tariffs, the establishment of common standards, the introduction of a common currency. All facilitate trade but the latter ones would typically be counted under the heading integration rather than trade liberalisation.

2. Trade and the demand for protection

To simplify the exposition, the following model deals only with two countries that are taken to be identical (3). And to simplify the analysis further the model does not consider relations with the rest of the world. All countries are assumed to participate in the same liberalisation initiative and as they are all identical it is sufficient to concentrate on one "representative" country. Since the purpose is to analyse long-run developments it is assumed that trade is balanced, hence exports must equal imports. The model is based on two simple building blocks.

The first building block consists of the idea (line (1) in the southeast quadrant of figure 1) that the intensity of mutual trade, say exports over GDP, depends on the height of the trade barriers in the previous period. The higher the barriers to trade (indicated by \( B_i \)), the lower will be the intensity of trade in the next period.

---

2. See, for example, Brenton and Gros (1993) and Frankel and Wei (1995).
3. Formally the analysis would not be affected if it were based on a larger number of countries as long as they were identical.
The trade barriers could be measured by tariffs plus the tariff equivalent of all non-tariff barriers to trade. The latter are typically more important for industrial countries than the former. Inside the EC, tariffs were of course abolished with the common market, but substantial non-tariff barriers to trade remained even after the completion of the customs union in 1967, as shown by the research that prepared the internal market programme (see Emerson, 1988). Exchange rate variability can also be interpreted as a non-tariff barrier to trade. From this point of view, one could thus argue that even today some barriers to trade remain within the EU. Recent research, see for example McCollum (1995), has also shown that the trade among provinces of Canada is 10 to 20 times larger than their trade with comparable states of the US. This indicates that trade integration could still increase considerably within the EU.

It is assumed here that trade reacts with a lag to a lowering of trade barriers because it takes some time for industry to invest in new capacity or switch production once trade barriers have been lowered. The unit of time implicit in this model is certainly longer than one year. Five years or a complete business cycle might be needed to allow for the trade to respond to changes in barriers. Econometric studies of the impact of the EC on trade flows show significant effects only some years after the first tariff cuts had been phased in.

The second building block posits that the political support for lowering trade barriers increases with the degree of economic integration. The basic rationale behind this assumption is that the amount of trade barriers a country chooses is the outcome of a domestic political economy equilibrium which balances the demand for protection and the demand for free trade.

Most political economy models of protection postulate that the demand for trade barriers comes from industries whose interests are concentrated so that they can lobby effectively for protection. How is this demand for protectionism affected by the degree of trade integration? One could argue that the smaller the degree of import penetration, the more important it is to protect the profits that can be made on a protected domestic market against price competition from abroad. Moreover, the higher the import content of domestic production, the more likely it becomes that imports are also inputs. The industries using them will, of course, oppose higher trade barriers. All these arguments suggest that demand for protection declines with the importance of trade.

The demand for trade liberalisation should thus definitely increase with the importance of trade. The interest of exporters and consumers in general are more diffuse so that the forces that favour lower trade barriers face an important collective action problem. The higher the share of exports in GDP, the more important will trade liberalisation become for all industries so that they face a stronger incentive to lobby for lower trade barriers. A similar argument applies to the representation for the consumer interests in the political process.

The net effect should thus be that the demand for trade liberalisation increases with the importance of trade (exports or imports) in GDP. There is also some empirical evidence to suggest that more open countries find it easier to sustain trade liberalisation. Moreover, opinion polls show consistently a positive correlation between the share of intra-EC trade and support for EC membership, see for example Vaubel (1994a).
The assumption that more trade leads to stronger political support for lower barriers is captured in line (2) in the northwest quadrant of the figure which says that the higher the intensity of trade, $X_i$, the lower will be the trade barriers demanded by domestic political forces. However, this domestic political equilibrium can be disturbed by an exogenous, or "political" element, indicated by the variable $B_m$. If one were to compare France and Germany before the creation of the EC, one might have assumed that France would choose a higher level of trade barriers at the same level of trade because of its "Colbertiste" tradition. Changes in value of $B_m$ can be thought of as representing initiatives that are motivated by purely political considerations. For example, the idea that a customs union with Germany could be used to make a lasting peace would be a political "shock".

An important element of the model is that the strength of the link between trade and the demand for protection (given by the gradient of line (2), a parameter, $\beta$) can be affected by the institutional environment. One can thus show the extent to which the creation of a common market with common institutions can have a different effect from the mere adoption of an agreement to eliminate trade barriers without establishing common decision-making body. The latter, exemplified by the creation of EFTA or NAFTA should just lower the exogenous element in trade policy (the intercept, $B_m$, of line (2) in figure 1). By contrast, the former, i.e. the creation of a common market like the EC that has common decision-making mechanisms, should also affect the representation of exporters and consumers interests in the political process. Technically speaking, one could thus think about the creation of the EC as not only lowering $B_m$ but also as increasing $\beta$. As will be shown below, this can have much stronger effects than a mere change in $B_m$.

### 3. Positive feedback

It will be useful to abstract for a moment from the point made about institutions and consider what happens if the two countries "just" agree to lower barriers to trade. This will set in motion a self-reinforcing process of lower trade barriers, more trade and hence, stronger political support for trade liberalisation. During the first period after the agreement has been implemented, trade will be higher and this will increase the demand for further trade liberalisation from the strengthened lobby of exporters; but this implies that during the following period, trade will be even higher still so that exporters' interests will once again push for additional trade liberalisation. This process can go on for an infinite number of iterations, but this does not imply that trade to GDP ratio will go to one since each additional step will be smaller than the previous one. Figure 1 shows graphically the dynamic equilibrium. This figure shows the trade barriers determined by the political process today ($B_t$) as a function of past trade barriers ($B_{t-1}$) in the flat line labelled BB (4). The stationary long-run equilibrium obtains when $B_t = B_{t-1}$, i.e. it must be on the 45° line.

---

4. It will be seen that BB emerges from the dynamic relations between line (1) and line (2).
Figure 1.

Figure 1 shows the dynamic equilibrium embodied in the two BB lines of figures 2 and 3. Starting from any value for $B_{t-1}$, one can determine by going directly down to line (1), the value of $X_t$ (i.e., the amount of trade that takes place next period). The 45° line in the south-western quadrant transfers this value $X_t$ to the political equilibrium embodied in line (2) of the north-western quadrant. This political equilibrium determines the value of $B_{t}$ (i.e., the trade barriers that will be imposed in period t). Figure 1 shows this for two initial values of $B_{t-1}$ following the lines indicated by small dots. The resulting line BB summarizes the relation between $B_t$ and $B_{t-1}$ that emerges from this process.

Figure 2 contains only the dynamic political equilibrium, it contains two lines BB and BB' which have the same slope, but differ in the intercept.

Figure 2.

The point at which the system will stop moving is called the steady state, indicated by $B_{ss}$, and is thus given by the intersection of the BB lines with diagonal in Figure 2. A politically motivated liberalisation "shock" shifts the line that represents the dynamic political economy process downwards.
in Figure 2, e.g. from BB to BB'. The dashed line that leads from the old equilibrium to the new one shows in what steps the new stationary state will be reached. It is apparent that the vertical shift in the curve is much smaller than the difference between the initial equilibrium and the final one. In this sense the model implies a multiplier, any change in \( B_m \) will be magnified over time.

But what could constitute a political shock that leads to an increase or a fall in the exogenous element in setting trade barriers? For example, during the 1930s the depression and the rise of extremist parties made it politically more difficult to maintain free trade, leading to a downwards spiral in trade accompanied by increasing protectionism. By contrast, the political imperative to integrate Germany into Europe that was perceived by France in the 1950s could be interpreted as a political shock which led to the customs union idea and, after the formation of the EEC, set into motion a spiral of further, endogenous, gradual increases of trade and integration.

The Common Market of 1958 was already much more than a customs union. This brings us back to the importance of institutions. The common institutions that were created then (Commission and Council) were crucial for the dynamics of European integration since they changed the political process in which trade policy (and in general all policy that impinges on trade) is formed in Europe. With the Treaty of Rome, and the common institutions empowered to enforce the four ‘freedoms’ (free circulation of goods, services, people and capital), special interest groups experienced much more difficulties in obtaining protection (through non-tariff barriers) at the domestic level. The common institutions also lowered the cost of agreeing on, and implementing, further liberalisation measures since these institutions imply that there is automatic reciprocity (all measures apply to everybody) and that the application is uniform throughout the EU. This implies that at a given level of openness, it becomes easier to agree on lowering trade barriers (5). The internal market programme with its approach of minimum harmonisation and reciprocal recognition of standards is another example of an increase in efficiency with which an opening can be achieved in the context of common institutions.

Figure 3.

---

5. A related view of institutions would be that they provide a commitment against backsliding and safeguard against chea-
Figure 3 shows what happens if the efficiency parameter is increased. The new political equilibrium indicated by BB' now takes the form of a line that lies not only below the initial one, but is also flatter so that the intersection with the diagonal is even further to the left.

Common institutions thus lead to lower trade barriers in the steady state. They also lead to a faster dynamic process (technically speaking, because they increase the value of the root, which determines the speed of the movement towards this steady state). This does not mean that "political leadership" becomes less important. On the contrary! With common institutions a given politically motivated reduction in barriers will lead to a larger final increase in integration and will produce second-round effects more quickly. The model thus says that a common institutional framework gives politicians a more efficient instrument and thus makes political leadership even more important because it increases the pay-off.

4. Limitations and implications

The approach presented here does not pretend to provide a full explanation of the success of the ongoing process of European integration. However, this model can shed some light on the positive feedback that trade liberalisation can engender. This feedback can go in both directions. The spiralling down of trade in the inter-war period when trade barriers were increased as trade became less and less important could also find some partial explanation here. The collapse of trade among the republics of the former Soviet Union might be an even stronger example of how the dynamic process can go in the direction of less integration. When the Soviet Union collapsed trade among the former republics accounted for more than 30% of GDP in many of the newly independent states (and often 70-90% of their trade) so that the pressure to maintain an open economic space was quite strong. But for political reasons these countries were not willing to integrate economically among themselves. Projects for a CIS payments union and a customs union all failed (6). By now, intra-CIS trade has shrunk to a fraction of its former level and the EU is the main trading partner of most of the newly independent states. There are few economic interest groups left that push for intra-CIS integration.

The model presented here provides a formalization of ideas that have been expressed by political scientists in other forms (7). It can, however, go beyond theories such as "neo-functionalism integration theory" which posits that the dynamic process is driven by spillover effects from one area of policy to another. The idea modelled here does not imply that such spillovers have to exist to generate a dynamic process. It is based on the idea that a virtuous (for the opponents of integration a vicious) circle can operate within the area of economic policy.

The model can also be applied to the debate about deepening versus widening. Increasing the number of EU members increases the weight of interest groups that are exposed to intra-EU trade and hence should increase the demand for integration. This aspect of widening should thus favour deepening. From this point of view, there is no contradiction between the two. However, increasing the number of EU members might also diminish the efficiency of the EU institutions. This would reduce the dynamics of the integration process and would thus make deepening more difficult. Whether or not there is a trade-off between deepening and widening thus depends crucially on whether widening affects the efficiency of the EU institutions.

7. See Eichengreen and Frieden (1994) and Zürn (1995) for a recent survey.
The model presented here can provide an intuitively plausible story for European integration. It also contains a first attempt to distinguish between two different ways to organize trade liberalization; with and without a common institutional framework. If the common framework strengthens the forces of trade liberalization, as it apparently did in the case of the EU, the process acquires even more momentum. Other free trade initiatives, most notably EFTA, were less successful, probably because they did not have a similar common institutional framework that allows a broad range of political interests to be involved in the process of integration. Involving general political interests in the integration process should help to counter the demand for protection from special interest groups and should thus make it easier to reduce trade barriers (8).

Integration should be robust since it has its own political economy constituency. The model has also some general implications that are relevant for the political debate about European integration. First of all it implies that the "bicycle" view of European integration is misleading. This view is based on the observation that until now the process of European integration has usually been a movement forward. This has led some to believe that if the movement stops, the entire process might actually be reversed or at least be jeopardised. According to this paper, such a view is excessively pessimistic. The integration process should be robust since it has its own political economy constituency. Its dynamics are driven by the domestic political process in member countries that interact within the framework of the Treaty. However, the movement towards lowering trade barriers would come to a steady state in the absence of further politically-inspired initiatives. This steady state would be based on solid economic interest rates and would not contain the danger that the entire process could unravel just because it does not go forward.

The dynamic process identified here does not lead to the conclusion that 'Europe' will replace the nation state. The model does not imply at all that pressure groups will be organised along European lines, or that political allegiances and decision processes move to the European level (9). It shows that the interaction of purely national players can lead to a self-reinforcing process of integration, but one that might stop well short of leading to a new superstate.

8. This is generally assumed in political science. See Vaubel (1994b), who, however, takes a different view concerning European integration.
9. Milward (1994) comes to a similar result following a less formal political-science type investigation.
References


In a Europe with integrated goods and factor markets, the various national systems for providing social security are increasingly coming under pressure. Indeed, the creation of the common market has changed individuals' property-rights. This essay investigates these changes in relation to the objectives of efficiency and long-term balanced growth implicit in the Treaty of Maastricht. A central feature of this study is to elaborate the intra-generational and inter-generational redistributive character of the various systems of social security, and to demonstrate that factor mobility generates allocative inefficiencies. However, reorganisation of existing institutions would make it possible to eliminate these inefficiencies without the need for further centralisation.

Martin Kolmar, from Germany, studied Economics at the Rheinische Friedrich-Wilhelms-Universität in Bonn. As part of an exchange programme with the University of California, he attended graduate courses at Berkeley. After finishing his first degree back in Germany, he started work on a PhD at the Universität Konstanz, which he is expected to finish this October. He is also working at the university as a research assistant and lecturer in theoretical and applied economics, with a special emphasis on microeconomics. He has published parts of his work in several journals, and as a book. This year he won the 1997 Knut-Wicksell Prize of the European Public-Choice Society.
On the efficiency of national social security systems in the European Union

1. Introduction

One of the defining features of the Western European models of society is the evolution of national welfare systems. Over the last one hundred years or so, all of the current member states of the European Union (EU) have developed more or less extensive systems of social security, which can be analysed in terms of providing insurance against the adverse realisation of the risks of life. These include

- the financial risk arising from unemployment (unemployment insurance)
- the financial risk of illness and the need for care (illness and long-term care insurance)
- the maintenance risk arising through longevity (pensions insurance), and
- the risk of inadequate means to ensure subsistence (income support, welfare benefits).

In 1988 the European Commission published the action programme entitled "The Social Dimension of the Internal Market" which demanded equal priority for social and economic objectives. The work of this action programme was provisionally completed with the promulgation of the Social Policy Protocol as an annex to the Treaty of Maastricht (EUT). Community powers in the field of social policy are founded in Article G, which refers to Articles 117 ff. of the Treaty of Rome (ECT), and in the protocols in the Annex to the EUT (1).

On average, EU member states spent 27% of GDP on public social welfare systems in 1990, compared to 15% in the USA, 13% in Australia and just 12% in Japan (2). Table 1 provides an overview of social expenditure by the member states of the European communities in 1992. The financing side shows total revenues plus the employee and employer contributions. The difference between the two columns identifies the amount of state subsidy. The expenditure side shows total expenditure and expenditure on social provision. These observations demonstrate that, the various national systems have largely developed independently of each other and that they reveal wide differences at the detail level.

We can categorise these variances in qualitative terms by reference to the following criteria:

- the qualifying conditions for entitlement
- the benefit entitlement
- the benefit structure
- the financing regime, and
- the organisational structure

1. The most important statutory instruments enacting occupational mobility are Regulations 1408/71 and Implementation Regulations 574/72, which regulate the exportability and amalgamation of insurance entitlement. Directives 364-366/90 extend the scope of individuals covered by the former. The first fundamental change was brought in by Regulations 1247/92 which regulates the treatment of non-contributory special benefits. A detailed representation of all the relevant legal instruments would exceed the scope of this study. Interested readers should refer to Eichenhofer (1993) and Willms (1990).

Table 1. Expenditure by Member States on Social Security Systems in 1992 (in DMbn)

<table>
<thead>
<tr>
<th>Financing</th>
<th>Expenditure</th>
<th>Indicators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>Contributions</td>
<td>Total Social expenditure</td>
</tr>
<tr>
<td>Belgium</td>
<td>102.54</td>
<td>70.22</td>
</tr>
<tr>
<td>Denmark</td>
<td>62.18</td>
<td>7.48</td>
</tr>
<tr>
<td>France</td>
<td>631.02</td>
<td>503.52</td>
</tr>
<tr>
<td>Germany</td>
<td>828.70</td>
<td>579.64</td>
</tr>
<tr>
<td>Greece</td>
<td>33.06</td>
<td>24.98</td>
</tr>
<tr>
<td>Ireland</td>
<td>19.42</td>
<td>7.39</td>
</tr>
<tr>
<td>Italy</td>
<td>553.30</td>
<td>367.69</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>6.06</td>
<td>3.17</td>
</tr>
<tr>
<td>Netherlands</td>
<td>207.00</td>
<td>127.46</td>
</tr>
<tr>
<td>Portugal</td>
<td>36.27</td>
<td>22.71</td>
</tr>
<tr>
<td>Spain</td>
<td>232.44</td>
<td>163.06</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>575.89</td>
<td>241.44</td>
</tr>
<tr>
<td>EU</td>
<td>3 287.87</td>
<td>2 118.77</td>
</tr>
</tbody>
</table>

Source: German Federal Statistics Office (1996), own calculations

In doing so we need to remember that the national systems differ much more widely in terms of the qualifying conditions they impose than in terms of the risks they cover. The European Commission distinguishes four, what it terms geosocial groups. The first group consists of Denmark, Finland and Sweden. For these countries, social security is seen as a civic right involving extensive protection, a system of basic provision and centralised administration. The second group comprises the United Kingdom and Ireland. Administration is also centrally structured and there is an high number of basic entitlements. However, on average the benefits and contributions are lower than in Scandinavian. The third group takes in the Benelux countries, Germany, France and Austria. Their systems are characterised by a greater degree of administrative decentralisation, while their contributions - and therefore generally also their benefits - are incomes-related. Only the Netherlands has deviated from this traditional pattern in certain respects. The fourth group encompasses Italy, Greece, Portugal and Spain. This group is united more by the fact that they do not belong to the other groups than by any specific identifiable shared features. They therefore present a corresponding mixed picture.

The process of globalisation, demographic developments and European integration itself have brought the different countries' welfare state models under intensive pressure to reform. There is a broad agreement that the welfare state "patient" is in urgent need of comprehensive therapy; however, there are widely diverging views on the causes of the illness and therefore on what would constitute the correct treatment. One group believes in the self-healing powers of an already sick patient. In this group's view, rising competitive pressures will result in the slimming-down of the existing systems and a concomitant rise in their efficiency. The mobility of goods and factors will make existing inefficiencies transparent and migration on the part of the Union's citizens will result in the correctly-targeted distribution of the "social insurance" good (3). The opposing group argues that

3. See, for example, Tiebout(1956) and Vaubel(1993a,b).
the opening up of the market has infected previously "perfectly fit" social security systems with a disease which is raging through Europe under the only rarely operationalised name of "social dumping" [4].

The aim of this study is to investigate that component of the crisis in the nation states' welfare state models which is attributable to the process of European market integration and to elaborate the extent of necessary policy-reforms. The study further examines which system reforms are capable of achieving the assumed objectives of efficiency and long-term balanced growth. These objectives can be perceived as operationalisations of the will of the EU's member states as set down in the Treaty of Maastricht (EUT) [5]. In addressing these aims, the study will devote particular attention to the question of the extent to which the existing national-level responsibility for social-security systems can be considered to be adequate to the problem in the future.

This essay proceeds in two stages. First it elaborates conditions under which national responsibility for social-security systems is compatible or incompatible with the normative objectives of efficiency and balanced growth (section 2). Next it elaborates reform options and provides an answer to the question of the extent to which decision-making authority is correctly allocated to the national-state level (section 3).

2. Identification of inefficiencies

The creation of a common market for goods and factors in the EU has brought about a situation which is unique in history - the existence of a completely integrated supranational economic area retaining national responsibility for fiscal, social and (thus for at least) monetary policy. As far as monetary policy is concerned, the Maastricht Treaty has laid down a timetable for the creation of a common currency. In spite of, or possibly precisely because of, this agreement, the academic debate on the reasonableness of the convergence criteria on the one hand and the very objective of a single currency on the other has flared up again. In all three policy areas, the debate centres around the issue of how far policy-making responsibility should optimally be distributed in order to achieve the normative objectives.

The economic interpretation of the subsidiarity principle concerning social policy asks for the existence and range of (fiscal) externalities. Political decision-making power should be located at the level at which the goal of efficiency and balanced long-term growth can best be achieved. This makes it necessary to identify possible inefficiencies induced by social policy at a national level. The main feature of social-security systems is their redistributive character. It is the nature of insurance contracts to redistribute incomes ex-post, after the event to be insured has occurred, from individuals with a good outcome to individuals with a bad outcome of the risk.

However, unlike in the case of contracts protected by private (commercial) law, the ex-post enforcement of the contract is not automatic in the case of the state-administered systems, since the country-of-residence (or -employment) principle applies as a qualifying condition for membership of the contractual insurance scheme. In other words, a net beneficiary can legally escape his or her

4. See, for example, Sinn (1990).
5. These are to be found in the Preamble and in Article B of the Maastricht Treaty (EUT).
Unlike contracts protected by law, the enforcement of social security contracts is not automatic for state-administered systems, since the country-of-residence (or employment) principle is a qualifying condition for membership.

responsibilities under the contract by migration (moving either his household or his job). The mobility of goods and factors is therefore a possible source of inefficiencies in situations where the residence principle is applied as a condition of qualifying for a system of social-security.

In the following sections, a policy is termed *intra-generationally* redistributive when transfers flow between individuals of a single generation (e.g. unemployment and health insurance as well as income support). A policy is termed *inter-generationally* redistributive when transfers flow between individuals of different generations (e.g. pension and long-term care insurance as well as some elements of health insurance).

### 2.1 Intra-generational redistribution

**Capital mobility**

One of the political debates of the time centres around the theme of ancillary wage costs and the financing of social-insurance systems by taxes on productive capital. The argument runs that since international capital can be seen as essentially mobile, international competition between locations reduces the effective burden on this factor in order to prevent capital migrating to other locations.

From the normative point of view, some tax on the owners of capital to finance the costs of unemployment insurance is efficiency enhancing in a closed economy, as this involvement will influence the behaviour of employers in relation to dismissals. Since the costs of unemployment have to be borne by the whole of society but in the absence of an employers' contribution do not form part of a company's business calculations, employers' dismissal behaviour generates an externality which may be internalised by the means of an employer contribution.

This logic is preserved in an open economy, despite the fact that the owners of capital are better placed than before to escape the tax burden by transferring their capital abroad. This situation produces two sources of inefficiencies: 1. If the effective burden on capital differs between regions, this results in a distortion of the allocation of capital (*allocative inefficiency*). An efficient use of capital requires equalisation of marginal productivities across regions. In a decentralised capital-market equilibrium however, net returns (as the difference between marginal productivity and effective tax burden) are in balance (6). 2. The situation generates *level inefficiencies* since - other things being equal - any region is able to lower its effective burden and broaden its tax base by attracting additional capital. But since this strategic incentive is available in every country, this results in lower rates of redistribution without any substantial change in the tax base. Therefore we can conclude that national taxes on capital to finance social-security systems generate allocative and level inefficiencies.

**Unified goods markets**

Denmark finances a particularly high proportion of its social benefits and provision from general taxes. Alongside income tax, an indirect tax on consumption (VAT) is one of the most important sources of state revenues. It is therefore safe to anticipate that some social benefits will be financed from consumption tax receipts. The other member states of the EU have also recently begun to

---

debate the question of whether or not part of their social expenditure should be funded by the revenue from a (higher) consumption tax.

Two [pure] principles of co-ordination of consumption taxation are discussed and applied in the EU, namely the destination and the origin principles. In their idealised forms, the destination principle takes the consumption of a particular country as its tax base while the country of origin principle takes the production of a particular country as its tax base [7]. When income redistribution is financed from the revenue of these taxes, this generates two effects: firstly the change in the tax rates produces a ceteris paribus change in relative prices. This effect is exactly offset by a decrease in producer prices, thus, its net effect is zero. Secondly, for the origin principle, exports seem to provide a direct means of access (i.e. not generated by general equilibrium price effects) to foreign production. Again, this effect is exactly counterbalanced by a change in imports due to trade-balance equalisation [8]. Thus, the financing of social-security systems out of consumption taxes does not induce inefficiencies when the pure origin or destination principles apply.

Labour mobility and freedom of movement as a civic right

The academic literature on the co-ordination of national social-security systems devotes much of its attention to mobility of the labour factor [9]. This seems perfectly reasonable since the workers and/or citizens of the Union are directly affected by the levels of social-security contributions and benefits. On the other hand, the assumption is very much disputed since migration has tended to be a minor phenomenon within the EU historically. This section draws together some of the key findings from the literature and then goes on to discuss the empirical relevance of household- and labour mobility.

First consider labour mobility. Workers, for both unemployment and sickness insurance must claim benefits in the country of their last employment. As far as unemployment insurance is concerned, benefit payments are only sent abroad for the purpose of seeking work and only for a limited period of time. Hence, there are no fiscal incentives for the recipients of transfers to migrate to a country which pays out higher unemployment or sick pay benefits because migration would not change their benefits. By the same token, this conclusion does not hold true for net contributors to the systems, because the individual contribution-benefit package can be freely chosen by the choice of the employment location. Thus, there exist incentives to migrate for purely fiscal reasons. As in the case of capital mobility, this results in strategic incentives for the national governments to reduce the scale of benefits to an inefficient level even given ex-ante actuarially fair premiums. Since contribution payments are financed from current income there is a legal opportunity to escape one's contractual obligations through migration, this situation creates the problem of adverse selection, in which "good" risks are encouraged to migrate to regions with low social contributions and "bad" risks to migrate to regions with high social benefits. Sinn (1990) writes: "A Europe with competing tax systems and unrestricted migration would be like an insurance market where the customers can select their company and pay the premium after they know whether or not a loss has occurred."

Every region has a strategic incentive to reduce its social costs to broaden its tax base through encouraging the immigration of good risks. Countries with a high level of income support may be forced to lower this support in order to avoid becoming a "poverty magnet".

This view stands in sharp contrast to the position formulated by Pigou (1956) and adopted by Vaubel (1993a,b), among others, that "voting by feet" is efficiency-enhancing if public goods have a regional spatial dimension. The Pigouvian argument overlooks two sources of inter-regional inefficiencies: 1. Differences in the net burden on workers result in distortion of the allocation of labour. 2. Ceteris paribus, every region has a strategic incentive to reduce its social costs in order to broaden its tax base through attracting immigration of good risks. This process results in a prisoners-dilemma equilibrium if migration takes place at low costs.

So far, a distinction between functional and personal mobility has not been drawn. In every member state of the EU, the entitlement to social insurance is tied to the country of employment. This need not necessarily be the employee's place of residence. There has been a high correlation between the two historically, with an exception of commuters. The creation of a Single Market and the growth of telecommunication networks gives grounds to anticipate that the proportion of employees who work in one country and live in another will grow in the future. Thus, inter-regional differences in net-of-social-security incomes tend to induce commuting for purely fiscal reasons.

The phenomenon of inter-regional commuting provides a basis to identify the special relevance of the problem of social arbitrage for certain regions within the EU. Since language barriers and cultural differences are more or less negligible in border regions, the primary pressure for reforms affects certain regions within the EU. These might be the border regions of Belgium, Germany, France, Luxembourg and the Netherlands; Ireland and the UK; Germany and Denmark; Denmark and Sweden; Germany and Austria; and Portugal and Spain.

Let us now turn to the consequences of extending freedom of movement to all the citizens of the Union. In the 1994 White Paper on Social Policy, the European Commission says: "Article 8a of the Treaty gives every citizen of the Union the right to reside freely within the territory of the member states. [...] The challenge to the Union now is therefore to create a real European mobility area [...]" (10). The effective realisation of the freedom of movement and residence of every Union citizen therefore requires the creation of new co-ordination rules in the field of health and unemployment insurance, in the field of family cost equalisation, and in the field of welfare assistance (income support). For instance it would be necessary to create equivalence rules for sickness insurance to cover not only cross-border commuters and people temporarily abroad but also all other population groups. If this plan were to be put into effect, and the Maastricht Treaty explicitly refers to the right of free movement for all citizens of the Union, this would substantially extend the circle of people able to migrate without hindrance. This generates problems, especially in relation to welfare assistance (income support). As all EU citizens present on the territory of any EU country are entitled to receive social-security benefits in that country, income support recipients can change their benefit entitlement through migration. The same conclusion is also true in reverse for the payers of transfers. Countries with a high level of income support can therefore be expected to be forced to lower it in order to avoid becoming a "poverty magnet". If we assume that the level of basic income support was originally selected to be efficient, then this again will induce a level inefficiency. This problem is likely to become particularly relevant if the EU's membership is extended to include countries from eastern Europe.

As has already been said, the findings of this section of the study are dependent on the assumption that occupationally active people and transfer recipients do in fact migrate. Table 2 provides an overview over EU and non-EU foreign residents in the EU.

The figures appear to confirm this view: if we ignore Luxembourg, 30% of whose population are nationals of other EU member states, then in 1992 the proportion of other-EU varied between 0.3% (Portugal) and 5.6% (Belgium) of the total population. In absolute terms, this is equivalent to 4.88 million people. As would be expected, the most pronounced interweaving is found in neighbouring countries sharing the same or related languages (Ireland-UK, France-Belgium). A further substantial stock of the migrant population is explained by the emigration of Italians, Greeks, Portuguese and Spaniards to France and Germany in the Sixties. This would appear to confirm that political action is needed at most on a bilateral basis between countries sharing the same language and countries with a long-documented history of immigration.

### Table 2. EU and third-country foreign populations of EU countries (1000's) (1992)

<table>
<thead>
<tr>
<th></th>
<th>Bel</th>
<th>Den</th>
<th>Fra</th>
<th>Ger</th>
<th>Gre</th>
<th>Irl</th>
<th>Ita</th>
<th>Lux</th>
<th>NL</th>
<th>Par</th>
<th>Spa</th>
<th>UK</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bel</td>
<td>X</td>
<td>0.3</td>
<td>56.1</td>
<td>22.4</td>
<td>1.7</td>
<td>-</td>
<td>4.4</td>
<td>11.2</td>
<td>23.9</td>
<td>1.1</td>
<td>6.7</td>
<td>7.1</td>
<td>134.9</td>
</tr>
<tr>
<td>Den</td>
<td>2.6</td>
<td>X</td>
<td>3.5</td>
<td>19.6</td>
<td>1.7</td>
<td>-</td>
<td>1.6</td>
<td>1.7</td>
<td>1.7</td>
<td>0.5</td>
<td>3.5</td>
<td>15.1</td>
<td>51.5</td>
</tr>
<tr>
<td>Fra</td>
<td>94.9</td>
<td>2.1</td>
<td>X</td>
<td>94.2</td>
<td>7.9</td>
<td>-</td>
<td>21.3</td>
<td>14.7</td>
<td>9.4</td>
<td>3.4</td>
<td>20.0</td>
<td>47.1</td>
<td>315.0</td>
</tr>
<tr>
<td>Ger</td>
<td>28.5</td>
<td>8.6</td>
<td>52.7</td>
<td>X</td>
<td>14.9</td>
<td>-</td>
<td>29.7</td>
<td>9.6</td>
<td>46.9</td>
<td>5.1</td>
<td>28.8</td>
<td>46.4</td>
<td>271.2</td>
</tr>
<tr>
<td>Gre</td>
<td>20.6</td>
<td>0.6</td>
<td>6.1</td>
<td>352.0</td>
<td>X</td>
<td>-</td>
<td>14.3</td>
<td>1.0</td>
<td>5.2</td>
<td>0.1</td>
<td>0.5</td>
<td>23.0</td>
<td>423.4</td>
</tr>
<tr>
<td>Irl</td>
<td>2.5</td>
<td>1.0</td>
<td>3.5</td>
<td>14.7</td>
<td>0.9</td>
<td>X</td>
<td>1.4</td>
<td>0.6</td>
<td>4.0</td>
<td>0.2</td>
<td>1.8</td>
<td>506.1</td>
<td>536.7</td>
</tr>
<tr>
<td>Ita</td>
<td>240.0</td>
<td>1.9</td>
<td>252.8</td>
<td>563.0</td>
<td>8.3</td>
<td>X</td>
<td>19.8</td>
<td>17.2</td>
<td>1.2</td>
<td>11.7</td>
<td>74.7</td>
<td>1190.6</td>
<td></td>
</tr>
<tr>
<td>Lux</td>
<td>4.7</td>
<td>0.0</td>
<td>3.0</td>
<td>5.5</td>
<td>0.1</td>
<td>-</td>
<td>0.3</td>
<td>X</td>
<td>0.3</td>
<td>0.0</td>
<td>0.1</td>
<td>14.0</td>
<td>14.0</td>
</tr>
<tr>
<td>NL</td>
<td>67.7</td>
<td>2.1</td>
<td>17.9</td>
<td>113.8</td>
<td>3.9</td>
<td>-</td>
<td>5.6</td>
<td>3.8</td>
<td>X</td>
<td>1.9</td>
<td>9.7</td>
<td>25.0</td>
<td>251.4</td>
</tr>
<tr>
<td>Por</td>
<td>17.8</td>
<td>0.3</td>
<td>64.9</td>
<td>105.6</td>
<td>0.5</td>
<td>-</td>
<td>2.8</td>
<td>45.7</td>
<td>8.7</td>
<td>X</td>
<td>25.4</td>
<td>17.8</td>
<td>874.3</td>
</tr>
<tr>
<td>Spa</td>
<td>51.1</td>
<td>0.9</td>
<td>216.0</td>
<td>133.2</td>
<td>1.1</td>
<td>-</td>
<td>9.3</td>
<td>2.7</td>
<td>16.9</td>
<td>7.6</td>
<td>X</td>
<td>38.2</td>
<td>477.0</td>
</tr>
<tr>
<td>UK</td>
<td>24.2</td>
<td>10.5</td>
<td>50.4</td>
<td>111.7</td>
<td>20.6</td>
<td>-</td>
<td>20.7</td>
<td>3.7</td>
<td>41.8</td>
<td>8.9</td>
<td>50.1</td>
<td>X</td>
<td>342.6</td>
</tr>
<tr>
<td>EU</td>
<td>554.6</td>
<td>28.3</td>
<td>113.7</td>
<td>1357.3</td>
<td>27.5</td>
<td>-</td>
<td>111.4</td>
<td>114.5</td>
<td>176.0</td>
<td>30.0</td>
<td>138.3</td>
<td>800.5</td>
<td>4892.6</td>
</tr>
<tr>
<td>TC</td>
<td>367.9</td>
<td>141.2</td>
<td>2284.9</td>
<td>5349.6</td>
<td>151.7</td>
<td>-</td>
<td>425.6</td>
<td>14.1</td>
<td>556.8</td>
<td>83.7</td>
<td>202.4</td>
<td>1211.9</td>
<td>10789.8</td>
</tr>
<tr>
<td>TF</td>
<td>922.5</td>
<td>169.5</td>
<td>3596.6</td>
<td>6885.3</td>
<td>213.3</td>
<td>-</td>
<td>537.0</td>
<td>128.6</td>
<td>732.8</td>
<td>113.7</td>
<td>360.7</td>
<td>2012.4</td>
<td>15672.4</td>
</tr>
<tr>
<td>TP</td>
<td>9998</td>
<td>5158.5</td>
<td>57182.0</td>
<td>81187.0</td>
<td>10182.0</td>
<td>3486</td>
<td>57782.0</td>
<td>378.0</td>
<td>15158.0</td>
<td>9866.0</td>
<td>39092.0</td>
<td>50955.0</td>
<td>340424.0</td>
</tr>
<tr>
<td>EU/TP</td>
<td>0.056</td>
<td>0.006</td>
<td>0.023</td>
<td>0.019</td>
<td>0.006</td>
<td>-</td>
<td>0.002</td>
<td>0.303</td>
<td>0.012</td>
<td>0.003</td>
<td>0.004</td>
<td>0.016</td>
<td>0.014</td>
</tr>
<tr>
<td>TC/TP</td>
<td>0.037</td>
<td>0.027</td>
<td>0.040</td>
<td>0.066</td>
<td>0.015</td>
<td>-</td>
<td>0.007</td>
<td>0.037</td>
<td>0.037</td>
<td>0.009</td>
<td>0.005</td>
<td>0.024</td>
<td>0.032</td>
</tr>
<tr>
<td>TF/TP</td>
<td>0.092</td>
<td>0.033</td>
<td>0.063</td>
<td>0.085</td>
<td>0.021</td>
<td>-</td>
<td>0.009</td>
<td>0.340</td>
<td>0.048</td>
<td>0.012</td>
<td>0.009</td>
<td>0.035</td>
<td>0.046</td>
</tr>
</tbody>
</table>

Source: German Federal Statistics Office (1996), own calculations

Legend: EU = Foreign EU nationals; TC= Foreign third-country nationals; TF = total foreigners; TP = total population

As far as future developments are concerned however, it needs to be assumed that commuting will spread local inefficiencies and that the increasing decoupling of domicile and workplace will generate additional inefficiencies.
2.2 Inter-generational redistribution

The second important category of state redistribution transfers income between generations. This applies by definition for pay-as-you-go-financed public pension systems and long-term-care insurance, but sickness insurance also contains elements of inter-generational redistribution. The crisis of financing these systems have been and will be made dramatically more manifest in almost every EU country as a result of demographic change. Table 3 summarises the evolution of net-reproduction rates between 1970 and 1995. Although the decline is universal, one can see that there are substantial quantitative differences between the member states. Whereas in Italy and Spain the average rates were at extremely low 0.63 and 0.66 respectively, in the UK and in France the average rates were at 0.90 and 0.87 respectively. The gross rates of return from a pay-as-you-go financed system therefore differs by around one-third.

Table 3. Net-reproduction rates

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>0.92</td>
<td>0.76</td>
<td>0.79</td>
</tr>
<tr>
<td>Denmark</td>
<td>0.94</td>
<td>0.68</td>
<td>0.82</td>
</tr>
<tr>
<td>France</td>
<td>1.10</td>
<td>0.90</td>
<td>0.87</td>
</tr>
<tr>
<td>Germany</td>
<td>0.77</td>
<td>0.70</td>
<td>0.72</td>
</tr>
<tr>
<td>Greece</td>
<td>1.06</td>
<td>0.91</td>
<td>0.70</td>
</tr>
<tr>
<td>Ireland</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Italy</td>
<td>1.05</td>
<td>0.74</td>
<td>0.63</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Netherlands</td>
<td>0.94</td>
<td>0.73</td>
<td>0.82</td>
</tr>
<tr>
<td>Portugal</td>
<td>1.25</td>
<td>0.93</td>
<td>0.70</td>
</tr>
<tr>
<td>Spain</td>
<td>1.32</td>
<td>0.84</td>
<td>0.66</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>0.97</td>
<td>0.87</td>
<td>0.90</td>
</tr>
</tbody>
</table>

Source: German Federal Statistics Office (1996)

An inter-generational contract cannot be implemented with the voluntary consent of all the parties, since most of the individuals affected will not have been born at the time of contract implementation. Unlike in the case of intra-generational contracts, a “generational contract” by definition cannot be implemented with the voluntary consent of all the parties, since most of individuals affected will not have been born at the time of contract implementation. Unlike a funded system where the accumulated capital stock is sold in old age to the generations born in the meantime, direct claims on the working income of these generations cannot be secured through private contracts. For this reason, the state needs to step in as “intermediary” to represent the generations who are not yet present around the negotiating table (11) in order to realise efficiency gains if they are available.

During the last few years there has been an intensive debate about the possibility of a Pareto-improving transition from a pay-as-you-go to a fully-funded pension system. The results are as follows: With exogenous population growth, a Pareto-improving transition is possible if and only if a static inefficiency can be reduced (Fenge 1995). With endogenous population growth, a pay-as-you-go system takes the function of a Pigouvian tax (Peters 1995). Microeconomic behaviour takes no account of the macroeconomic connection between population growth and interest rates. A pay-as-you-go

11. The perspective taken here is purely normative. The extent to which the state - in whatever sense - is capable of representing the “interests” of future generations is not discussed here.
system provides a means of internalising this interest externality. Thus, the transition to a fully-funded system is not desirable for efficiency reasons.

Labour mobility

When labour is mobile, the existence of national pay-as-you-go pension systems encounters a similar problem to that experienced due to labour mobility in the case of intra-generational redistribution: the net benefit of such a system consists of the pension insurance contributions times the difference between the expected aggregate wage-income growth rate and the capital market interest rate. The expected aggregate wage-income growth rate depends on the expected population growth rate. Thus, if one assumes that fertility is exogenous, the migration behaviour of the next generation will influence the net benefits of the pension system. Other things being equal, the next generation will try to escape a high burden of pension claims. As Homburg and Richter (1993) and Breyer and Kolmar (1995) have shown, a decentralised equilibrium is only efficient if the systems are harmonised. With a competitive labour market a worker's income decomposes into the marginal product of labour and the net benefit from the pension system. Efficiency requires the equalisation of marginal productivity, thus net benefits have to be equal in all countries.

Table 4 provides an overview of the natural and geographical population changes in the member states of the EU in 1993. As can be seen, the differences between the member states are substantial on both measures. They range from 5.0 (Ireland) to -1.2 (Germany) for natural population growth, and from 10.7 (Luxembourg) to -1.7 (Ireland) for net migration.

This result is robust as far as the mobility assumption is concerned. As Breyer and Kolmar (1995) have shown, when the mobility of the labour factor is restricted, the co-ordination requirements depend on the parameter values of the economies. A complete consolidation creating a European pension system might even be necessary in this case.

Table 4. Natural and geographical population changes (1993)

<table>
<thead>
<tr>
<th>Country</th>
<th>Natural population growth '000s per 1000 inhabitants</th>
<th>Net migration '000s per 1000 inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>13.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Denmark</td>
<td>4.5</td>
<td>0.9</td>
</tr>
<tr>
<td>France</td>
<td>180.2</td>
<td>3.1</td>
</tr>
<tr>
<td>Germany</td>
<td>-98.8</td>
<td>-1.2</td>
</tr>
<tr>
<td>Greece</td>
<td>5.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Ireland</td>
<td>17.8</td>
<td>5.0</td>
</tr>
<tr>
<td>Italy</td>
<td>-3.6</td>
<td>-0.1</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>1.4</td>
<td>3.6</td>
</tr>
<tr>
<td>Netherlands</td>
<td>57.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Portugal</td>
<td>7.6</td>
<td>0.8</td>
</tr>
<tr>
<td>Spain</td>
<td>49.5</td>
<td>1.3</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>103.8</td>
<td>1.8</td>
</tr>
<tr>
<td>EU</td>
<td>338.3</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Source: German Federal Statistics Office (1996)
Endogenous population growth gives rise to two further strategic aspects of collecting contributions to pay-as-you-go systems.

Let us first consider the case of a small open economy with an integrated capital market (Kolmar 1997a): For such an economy, there exists an incentive to increase welfare unilaterally through a further increase in the contribution rate of a pension system. This is due to the fact that every country can play a beggar-my-neighbour strategy with the rest of the world, and thereby roll over part of its cost burden onto the other countries. From the point of view of a single country, an increase in the volume of inter-generational redistribution reduces the effective costs of children (rearing costs less the discounted value of future benefits under the pension scheme). This will raise the rate of population growth, with the consequence that it is the very act of expanding the pension system which creates the conditions which make it superior to the funded system. This mechanism works because the implicit government debt can be counter-financed abroad. Since the same incentive exists in every country of the EU, the requirement for capital markets to be in equilibrium makes clear that this strategy leads to a prisoners dilemma.

On first sight, this result appears highly theoretical, but it can be supported by factual examples. For instance, long-term care insurance in the German Federal Republic was originally introduced as a pay-as-you-go-financed system even though the demographic trend of the last few decades make the problems associated with this form of funding predictable for the future. Such a funding gives governments an opportunity to conceal their debt in the budgets of their social-security systems. This development must be seen as a questionable evasion strategy of the member states, especially in the light of their struggles to meet the Maastricht convergence criteria.

Alongside this strategic "fertility inefficiency", those EU member states which by their actions are able to influence capital market interest rates are subject to another incentive to act according to strategic considerations (Kolmar 1997b, Persson 1985). This incentive results from their ability to change the capital market interest rate by changing the volume of transfers within the pay-as-you-go system. This option creates an incentive for a capital exporting country to roll over part of its debt burden onto the other countries by lowering the capital market interest rate. A capital-exporting country will have the opposite incentive. The consequence of these incentives is that the pension insurance contribution rates over or undershoot the optimum Pigouvian level. Additionally, a long-term equilibrium can only exist with growth if policies co-ordinated as to equalise growth rates.

3. Eliminating the inefficiencies: What degree of social policy centralisation is necessary in Europe?

The aim of the previous section was to identify inefficiencies caused by national-level responsibility for Social-security. Our deliberations were restricted to the direct parameters of policy, such as contribution rates. As we saw, these inefficiencies are widespread and their impact is not limited to labour mobility. In all cases of factor mobility this resulted in the occurrence of fiscal externalities. For the mobility of labour, a very simple and decentralised reform option suggests itself for the inter-
nalisation of externalities: The inefficiencies are driven by the opportunity for individuals to withdraw from an existing social contract after the risk was realised. Excluding this option eliminates these incentives. Such exclusion can be effected by switching from the residence to the origin principle as the qualifying criterion (Sinn 1990). Under such a system, citizens of country A always receive the social benefits of country A irrespective of their place of residence and employment.

Nationality can be determined either by birth, which would be a severe restriction of individual liberties but which covers a larger class of risks, or by an act of choice - for instance at the age of majority. This alternative would offer a greater degree of individual freedom, but the risks that have already been realised by the time of choice would be no longer insurable. From this viewpoint the concept of the nation has an interesting interpretation: A nation becomes a community of individuals who have chosen a specific mix of contributions, benefits and organisational principles and who pool the risks that are insured; it is effectively a special kind of insurance company.

Which reform options suggest themselves for those inefficiencies which cannot be eliminated by applying the origin principle? Wildasin (1991,94) shows that the bilateral inter-jurisdictional transfers can be used to internalise the remaining externalities. This bilateral process can take the form of bilateral bargaining or by a central authority that redistributes income between the countries. The European Regional and Social Funds - appropriately restructured - could act as an institution to guarantee the needed internalisation.
References:


The debate on the relationship between financial organisation models and business development has become more lively in recent years. The traditional interpretation is that the financial system is simply the outcome of the real requirements of an economy, not the driver of its performance. The strength of recent research on this issue, however, is the observation that this causality may be reversed, and that the design of the financial organisation model may influence real activity and economic development. Not only does competition between markets and financial institutions for the channelling of savings to investment determine the relationship between banks and firms in each country, but it also modifies a wide range of firm decisions. This paper shows an empirical analysis of the relationship between real and financial decisions taken by non-financial enterprises for a group of countries belonging to the OECD. The analysis makes a number of observations on the concentration of ownership, gearing levels, the risk of “short-termism”, asset structure, and the volatility of profitability. Though the data does not give a clear answer, there may be a convergence taking place between Anglo-Saxon market-based financial systems, and those on the continent which are more bank-based.

Pablo de Andrés Alonso is from Spain. He graduated in Business Administration at the University of Valladolid where he received his Ph.D. His doctoral dissertation “Contractual structure, strategic allocation of resources and results of large Spanish companies”, will be published shortly. At present, he is an Associate Professor of Financial Economics at the University of Valladolid. His research is focused on corporate finance, including capital structure, ownership and control, and financial strategy.

Félix J. López Iturriaga is also a Spanish national. He graduated in Business Administration at the University of Valladolid and received his Ph.D. at the same university. His Ph.D. essay received the Extraordinary Doctorate Award of the University of Valladolid in 1996. He has been visiting scholar at Boston College (Massachusetts). At present, he is an Associate Professor of Financial Economics at the University of Valladolid. His main research topics are related to economics of information, business investment, and corporate finance.
Financial system models, corporate governance and capital investment in OECD countries: Some stylised facts.

1. Introduction

The explanation of the capital structures found in companies of different countries is one of the main topics in corporate finance. The capital structure theory tries to answer questions such as: why do some financial contracts appear more frequently in one country than in others, or why are the financing models different among countries? (Hart, 1988). From Modigliani and Miller theory (1958), the financial instruments give their owners the right over the firm cash flows. Therefore, a firm's capital structure is irrelevant and differences in capital structure in the international arena are a minor issue. In fact, these differences could be explained through the tax effect, because each country has its own tax system.

Modern financial theory has reoriented the analysis of the capital structure issue by placing a bigger emphasis on the degree of concentration and homogeneity of the firm investors. This approach has its background in the economics of property rights, which studies efficiency of firms when control and ownership rights are separated (Berglöf, 1990). However, modern financial economics not only considers the ownership and distribution of the companies equity, but also combines analysis of the election between equity and liabilities with the study of the risk-return and control characteristics of the financial instruments.

On the other hand, since the work of Jensen and Meckling (1976), the positive agency theory has developed a model that helps to explain some issues related to a firm's capital structure such as: i) the role of the main shareholders as managerial supervisors (Grossman and Hart, 1986; Shleifer and Vishny, 1986); ii) internal funds and debt used by managers as a mechanism to convey information to the market and to reveal the incentives to the stakeholders (Myers, 1977; Ross, 1977; Myers and Majluf, 1984; Harris and Ravid, 1990). Furthermore, agency theory has been applied to the explanation of the role of financial institutions either as producers and providers of information about the company's solvency or as supervisors of the investment project return (Leland and Pyle, 1977; Droper and Hoag, 1978; Campbell and Kracaw, 1980; Diamond, 1984; Berlin and Loey, 1988; Bhattacharya and Thakor, 1993).

Once moral hazard and adverse selection problems have been considered, financial and investment decisions are not independent, and capital structure does matter. These approaches consider the asymmetric information problem of resource allocation and its effect on the capital structure. If information is perfect, then the capital structure is irrelevant as proposed by Modigliani and Miller (1958). However, once the moral hazard and adverse selection problems have been considered, financial and investment decisions are not independent and capital structure does matter. Harris and Ravid (1991) have proposed the following reasons to explain that dependence: i) changes in the capital structure modify the incentives of the management and, therefore, the firm cash flow; ii) the company capital structure transmits information to the market and it
modifies the market perception of the firm cash flow; and iii) changes in the capital structure modify the distribution of the firm control rights that, given asymmetric information and incomplete contracts, is part of the incentive system.

Available empirical research has focused on the role of agency cost in the determination of the firm's capital structure. From the results, it has found empirical evidence about the relation between agency costs and the firm's capital structure. However, that research has been unable to find that agency relations are the determinants of the capital structure on an international basis. Here, if the institutional environments differ, the same will be true for the agency problems. Then, the relationships between the agency variables and the capital structures of companies in different countries will be dissimilar (Dodd and Miller, 1990).

A possible explanation of the international variations in the capital structure of firms is the different role played by national financial systems in the allocation of control over strategic decisions. The underlying rationale of this approach is the competition between markets and financial institutions to channel savings to investment. This competition decides the relationship between banks and companies in each country. At the same time, it influences the financial decisions of firms.

Compared to the capital markets, the weight of the banking system provides some differences that give rise to two models or paradigms of financial organisation: the Anglo-Saxon model or market-based, and the continental model or bank-based. Thus, the former is found in countries such as United Kingdom or USA, where the financial intermediaries are focused on short-term lending to companies, whereas long term funds are provided by capital markets or by internal resources. On the other hand, Germany or Japan are examples of the latter model. In this model, banks are the main suppliers of medium and long term funds to companies and the role of capital markets is reduced in the allocation of financial resources. Moreover, in this model, banks tend to become shareholders. Both systems, then, differ not only in the use of equity and debt for financing but also in the control and ownership rights incorporated by debt and equity and how those rights are transmitted.

International comparisons (Franks and Mayer, 1990; Mayer, 1987, 1988, 1990; Mayer and Alexander, 1990; Prowse, 1994; Prevezer and Rickets, 1993) show the existence of significant differences between the two models. These differences appear either in the capital structure or in the governance structure: the allocation of control and ownership rights, the composition of the board of directors, the supervision role of financial institutions, the presence of institutional investors, etc. All these issues justify the necessity to analyse the capital structure in a broader view, rather than limiting the topic to a study of the finance contracts that tie together the firm with the suppliers of funds.

Finally, one may wonder about the relationship between financial structures observed internationally and real decisions taken by firms. As we already mentioned, there are, broadly speaking, two types of financial organisation models, the Anglo-Saxon and the continental model. The traditional view is the assertion that a financial system is the outcome of the real requirements of an economy, not the
driver of its performance. The strength of recent research on this issue, however, is the observation that the causality may often be reversed, and the design of the financial organisation model would impinge on real activity and economic development (Thakor, 1996). Therefore, it is of current interest to consider the relationship between the financial system model and the firm’s real investment decisions. This relation depends on the firm’s contractual and financial structure. To find answers, we use the proposals of positive agency theory about the nature and function of financial intermediaries. The literature views intermediaries as institutions oriented to agency cost reduction, which can decrease problems of adverse selection and moral hazard linked to asymmetric information between firms and financiers. Financial intermediaries reduce information and incentive problems by monitoring the firms and providing a mechanism of commitment to a long term relationship.

Under this framework, this paper offers an empirical analysis of the relation between the two main models of financial organisation, the financial and contractual structure of the firms and some of its real decisions. Our approach also tries to observe the distribution of risk and the allocation of control within firms in each country. Simultaneously, we analyse the consequences without imposing a previous informative structure. That is, we do not establish assumptions about the intensity and the nature of the information between the two parties of the contract (Berglöf, 1990). The methodology is, mainly, descriptive. Our goal is to produce some theoretical explanations that could help in the interpretation of a set of stylised facts. The ratios are taken from the manufacturing industry of the B.A.C.H. database (1), which includes several OECD countries from 1985 to 1993. Occasionally, other complementary information is utilised to complete the database. At any rate, the international comparisons are difficult because of the heterogeneity among national accounting standards (for example, pension funds, intangible assets).

The paper has the following parts: In the next section, we characterise the capital structure of different countries to find the main differences among them in terms of their financial contracts. The ownership, equity concentration and distribution, and debt sources are analysed. Later, we explore the guidelines followed by firms about real decisions like R&D expenses or asset structure. These real decisions are analysed concerning the differences observed in financial structures. Finally, we present the conclusion of the analysis.

2. Ownership, concentration and distribution of equity

The equity to total assets ratio is the starting point for the comparison of the firm’s capital structure in developed countries. The ratio of equity to debt gives us an idea about the type of finance chosen by firms. Also, that relation allows us to know the risk distribution between creditors and shareholders. From the data included on the B.A.C.H. database, we can distinguish two types of companies (see Figure 1): those with a high degree of equity in their capital structure, i.e. USA and

---

1. Bank for the Accounts of Companies Harmonized. In previous papers firm level data or the OECD Financial Statistics were used (Berglöf, 1990; Franks and Mayer, 1990; Jenkinson and Mayer, 1993; Mayer, 1990; Prevezer and Ricketts, 1993). The manufacturing industry includes intermediate products, investment goods and consumer durable and non-durable consumption goods. The sample of companies by country is detailed in Appendix I.
United Kingdom firms, and those with lower levels of equity, i.e., the companies from the rest of the countries in the sample. The high volume of equity found in the Anglo-Saxon companies is explained partly by the larger use of internal funds to finance their activities, as reported by Mayer (1990). In appendix II, we show the ratios of internal funds used by the companies of each of the seven countries included in the study. Countries whose companies use mainly internally generated funds are USA, UK, Germany and France (2). French companies seem to be improving their proportion of equity through an increase in internal funds. This agrees with the previous literature about the fact, that in the market-based model, a high volume of equity over total assets and the use of internal funds are expected.

**Figure 1. Equity/total assets**

![Graph showing equity/total assets from 1985 to 1993 for countries like USA, UK, Germany, Spain, France, Italy, and Japan.](image)

Source: B.A.C.H.

The capital structure of these companies can be also analysed in terms of the equity ownership and its distribution. Table 1 classifies the companies of each country according to the percentage of equity owned by the largest shareholder. This classification gives an idea about the degree of shareholder concentration and the type of corporate control. The companies of USA and UK have the lowest levels of shareholder concentration and control is exercised by the minority, whereas the control of firms in Spain, France, Italy and Germany is exercised by the largest owners of the equity, and they present higher levels of concentration. Approximately, half of the companies of the countries within the bank-based model are controlled by equity owners that represent more than 50% of the shares. In contrast, half of the companies of those countries within the market-based model are controlled by owners that represent less than 50% of the shares. Only Japanese companies are between the figures expected for the two above models in terms of concentration and control. However, on the basis of their central values, they could be included in the group of the continental model (3).

---

2. In contrast, Spanish, Japanese, Italian companies get funds from new equity issues. The average increase in equity ratios of these companies is larger (about yearly 9%) than those of German, British, American and French companies (about 6%). So, there seems to be a trade-off between internal funds and new shares issues.

3. In Japan there is a particular relationship between firms, banks and suppliers known as keiretsu which favours the concentration of ownership, although the shares are split in the books of many companies (Kester, 1993).
Table 1. Ownership concentration in individual firms

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;50</td>
<td>55</td>
<td>9</td>
<td>5</td>
<td>5.3</td>
<td>66</td>
<td>43.9</td>
</tr>
<tr>
<td>30-50</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20-25</td>
<td>42</td>
<td>29</td>
<td>70</td>
<td>26.6</td>
<td>17.5</td>
<td></td>
</tr>
<tr>
<td>15-20</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5-10</td>
<td>2</td>
<td>23</td>
<td>25</td>
<td>30.6</td>
<td>12</td>
<td>7.4</td>
</tr>
<tr>
<td>&lt;5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.3</td>
</tr>
</tbody>
</table>

Source: (a) (b) (c) (e): Berglöf (1990); (d) Leech & Leahy (1991); (f) Author's calculation

The different degree of ownership concentration in each country presents distinct incentives and supervision problems. These problems will be related to the type of corporate governance chosen. Thus, in companies oriented to the market there is a special emphasis on the delegation to the managers for the assumption of strategic decisions. Also, the control over these decisions is mainly accomplished through external systems like the corporate control market and the managerial labour market. The lowest level of agency costs due to the separation between ownership and management is reached when these control markets work efficiently. In contrast, both owners and creditors of companies with only a few shareholders will take part in the strategic decision process. In this situation, the agency cost will be lower because of the reduction in the interest divergence between owners and managers. However, the risk concentration will be higher, the risk diversification more difficult and the benefits of separation related to the specialisation of functions will be impossible to achieve which, in turn, could limit the capacity of firms for the creation of value. Anyhow, the efficiency of both models of corporate governance must be valued considering the benefits of the risk diversification and the inconvenience of the conflicts of...
interest due to the separation between ownership and management. In the end, the reduction of the contractual costs will be the basic yardstick for the survival of one of the two models presented for the allocation of control and decision rights and firm residual rights. So far, both systems have survived in parallel (Berglöf, 1990).

**Table 2. Ownership of listed stock**

<table>
<thead>
<tr>
<th>Distribution of shareholding (%)</th>
<th>(a) USA 1990-91</th>
<th>(b) Germany 1990-91</th>
<th>(c) Japan 1990</th>
<th>(d) U.K. 1990</th>
<th>(e) France 1990</th>
<th>(f) Spain 1992-93</th>
<th>(g) Italy 1991</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individuals/family</td>
<td>53.5</td>
<td>16.8</td>
<td>22.4</td>
<td>28.0</td>
<td>37.6</td>
<td>33.6</td>
<td>21.8</td>
</tr>
<tr>
<td>Non financial enterprises</td>
<td>-</td>
<td>39.2</td>
<td>24.9</td>
<td>10.1</td>
<td>22.8</td>
<td>10.4</td>
<td>20.6</td>
</tr>
<tr>
<td>Government</td>
<td>-</td>
<td>6.8</td>
<td>0.7</td>
<td>2.5</td>
<td>5.9</td>
<td>16.6</td>
<td>27.6</td>
</tr>
<tr>
<td>Banks</td>
<td>5.5</td>
<td>19.5</td>
<td>18.9</td>
<td>4.3</td>
<td>4</td>
<td>14.5</td>
<td>10.6</td>
</tr>
<tr>
<td>Foreign Enterprises</td>
<td>6.7</td>
<td>17.7</td>
<td>4.0</td>
<td>6.5</td>
<td>13.7</td>
<td>20.1</td>
<td>8.2</td>
</tr>
<tr>
<td>Pension Funds, Assurance Companies and others</td>
<td>34.3</td>
<td>-</td>
<td>29.1</td>
<td>48.5</td>
<td>16</td>
<td>4.9</td>
<td>10.7</td>
</tr>
</tbody>
</table>

Source: (a) and (b) Kester (1993); (c) and (d) Prowse (1994); (e) (f) and (g) Bolsa de Madrid (1995).

Another significant element in the ownership and control structure is the nature of the main shareholders. Depending on the nature, the control and supervision incentives will differ. Table 2 shows a classification of the firms depending on the nature of their main shareholders: Households, other national firms, government, a foreign firm, a financial intermediary or an institutional investor. One of the results that we will stress from this table is that companies in USA are overwhelmingly in the hands of households. In the remaining countries, financial institutions and non financial business have the highest participation in the ownership of their companies. This is an indication of who holds corporate control and bears the risk (4). Then, in these countries financial intermediaries have bigger incentives for control and supervision of the firms and sometimes they participate in the management of firms through the decision process. Another feature of the corporate ownership structure in market-based model firms is the importance of institutional investors, Pension Funds, Investment Companies, etc. In recent years, the rise of these investors with important proportions of shares and owning experience about how to monitor business activity has become an accurate mechanism for reducing agency problems in corporate governance (5). The reason is related to their financial incentives, their capacity to analyse the management of the firm and their possible contribution in designing strategy (Jensen, 1993).

4. In USA and UK the participation of banks, insurance companies and pension funds in the equity of non financial companies is regulated by law. Besides, these institutions tend to self impose limits to the level of risks they can assume with one firm (Prowse, 1994).

5. Even the presence of institutional investors is supposed to have a positive influence on the company value due to the efficient managers monitoring, some authors (Pound, 1988) suggest this kind of shareholders could come to an agreement with the managers acting against the other shareholders' interest [strategic alignment hypothesis]. Besides, it is not clear at all that institutional fund managers are much better than the companies in which they participate.
So far, we have analysed the main differences in terms of equity ownership and diversification and their consequences for corporate control in an international setting. Now, we will try to introduce some relevant issues about debt (volume, concentration, diversification and ownership) to improve the descriptive study of the firm's capital structure in terms of ownership and control. The analysis will consider the two models of financial organisation.

3. Debt ownership

There are differences in the weight of debt in the financial structure of companies. USA and UK firms have lower financial leverage levels than firms from other countries, while the financial leverage of French, Italian and Japanese firms is statistically alike and higher than the corresponding value in USA and UK companies. However, the time series shows a convergence in financial leverage among the companies of the sample that could diminish the existence of two distinct models of financial organisation in terms of debt (Figure 2).

Figure 2. Debt/total assets

![Debt/total assets chart](chart.png)

Source: B.A.C.H.

Another way to classify firms debt is by their origin. The source of debt is important because of its consequences over control and incentive systems that govern contractual relations. Thus, the contractual approach tends to distinguish between banking and non-banking debt to know its degree of concentration in the firm (Berglöf, 1990). When a firm is heavily indebted with a bank, the debt can be considered as crypto-equity because that bank will control and supervise the company (Hart, 1989).

In figure 3 the horizontal and vertical axis respectively show the ratio of bank financing over debt and the firm's financial leverage. The combination of these two ratios gives an idea of the firm's debt characteristics (see Appendix II and III). Again, Anglo-Saxon firms have a different positioning from the firms of the remaining countries. Thus, the USA and UK firms have lower levels of financial leverage and banking debt in their books. In continental firms, it is possible to distinguish between two subsets. Companies in Spain and Japan have the highest levels of financial leverage and banking...
It is also worth emphasising the positive relation between financial leverage and banking debt. debt, whereas Italian and German firms have lower financial leverage and banking debt ratios than Spanish and Japanese firms but higher than Anglo-Saxon companies. The volume of banking debt in French companies is a special case. Their banking debt is not significantly different from the Anglo-Saxon companies. It is also worth emphasising the positive relation between financial leverage and banking debt. For companies within the market-based model, the relations between banks and firms are restricted by law which in turn reduces the volume of debt in their books (Prowse, 1994), whereas in companies of the bank-based model there are not such rigid limitations, explaining the higher volumes of debt in their books and, therefore, their higher financial leverage.

Figure 3. Financial leverage and bank financing

![Financial leverage and bank financing chart]


With regard to non-banking debt, in general borrowed on the capital markets, the main differences in the capital structure of the companies remain homogeneous. Thus, companies of the Anglo-Saxon model, in particular the American ones, have the largest volume of market debt, although it must be said that, besides the two debt sorts analysed, total debt also includes the commercial debt. Figure 4 shows the differences in terms of market or banking debt. It seems that there is a substitution effect between both types of debt. From a statistical point of view (see Appendix III), companies from Spain and USA will be the two extremes, the former representing those firms that finance themselves almost entirely by banks, and the later representing the companies that borrow heavily from debt markets (6).

6. In the Spanish case, historically, firms are very dependent on the bank financing and their orientation to the market is low. However, this trend is changing in the last years due to: i) the development of the debt market; ii) the new legislation introduced, and iii) the use of internal funds in higher proportions.
We are interested in the relation between financial organisation and the decisions about real investment taken by firms.

4. Financial organisation model and real economy

So far, we have analysed the characteristics of the financial and, broadly speaking, contractual structures of firms from seven OECD countries. Now, we are interested in the relation between the financial organisation model -with its particular financial and contractual structure- and the decisions about real investment taken by firms. In the search for an answer, we will first describe the nature and role of financial intermediaries.

Financial markets promote an efficient allocation of risk in an economy taking into account the preferences of savers and investors. At the same time, financial markets produce incentives for the collection and interpretation of information. This information will be reflected in the prices of the assets and in the control plans of managers. The "invisible hand" performs a decentralised monitoring of firms by means of the markets, through control routines done by most of the savers. However, there are circumstances in which markets cannot behave efficiently due to the transaction costs and the information asymmetries related to the trade of financial instruments. In this scenario, the introduction of intermediaries like banks helps to complete the financial markets, improving the resource allocation. Banks try both to improve the risk distribution and to decrease the moral hazard and adverse selection problems of financial trade, through the management of information, the development of joint production processes, the application of specialized technologies, the diversification of portfolios, the signalling process and by practising economies of scale (Allen, 1994; Hellwig, 1991; Rodríguez, 1994). To achieve these functions, banks:

i) Exert the delegated monitoring of final investors on the behalf of savers (Diamond, 1984). Therefore, they evaluate investment projects and they control borrowers behaviour. In this process, banks take advantage of the information economies due to the portfolio size and the scope of the activities.
ii) Put in place stable and long term relationships with borrowers, which in turn creates a mechanism of commitment (Mayer, 1988). Given the restrictions prevailing in the real world for the fulfillment of complete contracts (7), many aspects of the relations among economic agents are accomplished through long term agreements in implicit contracts. Banks prefer to maintain long term tacit covenants at least for two reasons: 1) to take advantage of the reduction in moral hazard and adverse selection problems because of the incentives, along with the achievement of learning economies and the re-utilisation of information (Boot and Thakor, 1996; Chan et al, 1986; Fama, 1985; Shockley, 1995), 2) to improve their reputation (Boot et al, 1993). The role of banks in the bank-based model is different from that of raiders and take-over bids in the market-based model because of their behaviour and their positioning on long term relationships.

Therefore, the investment behaviour of firms could differ depending on the financial organisation model of their country. Thus, Porter (1992) says that the USA market oriented financial system favours a management based on short term performance. This short-termism has been the issue of a debate, whose main proposals have been summarised by Marsh (1992):

*Financial markets, together with the major players in them - investment analysts, fund managers and institutional investors - are too short-term oriented. As a result, the stock market places too much weight on current profits and dividends. This in turn causes companies to be managed according to the same short term horizons as their investors. For if firms fail the stock markets myopic test, their share prices will drop, making them vulnerable to take-overs. Companies are thus inhibited from undertaking long term investment in fixed capital, R&D, and training. Myopia on the part of Wall Street and the City of London has therefore been detrimental to economic growth and industrial competitiveness in the USA and UK, concerning Germany and Japan, which have so-called "bank-based" financial systems.

In the countries with bank-based financial systems, bank financing leads to close links between financial institutions and firms. This link tends to mean the control of firms by financial intermediaries through loans, the introduction of restrictions on the use of funds borrowed, constraints on dividend payments, the limitation of investment to a pre fixed level of risk, etc. (8). Such control by banks sometimes includes the ownership of shares. Here, the bank nominates its representatives on the firm’s board of directors. The German and Japanese firms are the clearest examples (9).

7. A complete contract includes all possible actions and their outcomes for all the periods in all the relevant contingencies.
8. The bank’s influence increases when there are no other viable alternatives of external financing, and the bank is one of the firm owners (Prowse, 1994).
9. Among the advantages of banking debt in financing firms are: i) to improve the stability of contractual relationships, reducing moral hazard problems; ii) if the company goes bankrupt the creditors - banks, mainly - will favour an internal resolution of the crisis; iii) to aid the development of the company, at least at the beginning, through the continuity of the relations and the improvement of the firm’s reputation. In contrast, some of the disadvantages are: i) an excess of stability could hurt the financial innovation capacity, and it could lead to a conflict of interest among the stakeholders in the contractual relationship; ii) besides, a high banking dependence will create risk concentration, with a reduction in the benefits of efficient diversification. A more detailed description of the pros and cons of banking financing could be found in Jenkinson and Mayer (1993), Prevezer and Ricketts (1993), Dimsdale and Prevezer (1993), Kester (1993), Mayer (1990), Berglöf (1990).
Recently, empirical evidence offered by Steinherr and Huveneers (1994) does not reject the assumption that universal banking might be a better support for long-term strategies of the non-financial sector than are the Anglo-Saxon institutions. An additional test about macroeconomic growth suggests that various representative variables of the two financial system models matter, although their contribution to explaining growth differentials is not large.

Therefore, we have found two hypotheses that could be tested: i) the eventual short termism about the R&D expenses of companies in the market-based model; and ii) the possible influence of banks in limiting the risk taken by firms on their real investments. We analyse these hypothesis with the available data.

4.1. R&D expenses

Reduction in the R&D expenses because of short termism has not been empirically confirmed. In fact, we see no statistically significant differences in the business enterprise R&D expenses as a percentage of GDP of Germany, Japan and USA for the period 1985-94 (Figure 5 and appendix IV). Then, it seems that the higher or lower weight of bank financing does not justify the differences in R&D expenses among countries. Other circumstances could be more meaningful in influencing the volume of R&D expenses of a country, as in the cases of Spain and Italy. A credible explanation of the observed data is that the characteristics of R&D expenses support their financing through internal resources (see Adam, 1992). Expenditure on R&D may create intangible assets that are not accounted as assets - for example, learning, knowledge, software. That is a significant constraint in our data.

Figure 5. Business enterprise R&D as a percentage of GDP and bank financing

<table>
<thead>
<tr>
<th>R&amp;D/Gross Domestic Product (%)</th>
<th>2,0</th>
<th>1,5</th>
<th>1,0</th>
<th>0,5</th>
<th>0,0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bank financing/Debt</td>
<td>0,2</td>
<td>0,225</td>
<td>0,25</td>
<td>0,275</td>
<td>0,3</td>
</tr>
<tr>
<td>USA</td>
<td>■</td>
<td>■</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRANCE</td>
<td>■</td>
<td>■</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>U.K.</td>
<td>■</td>
<td>■</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITALY</td>
<td>■</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPAIN</td>
<td>■</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>GERMANY</td>
<td>■</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAPAN</td>
<td>■</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


This reminds us of the opinion of Marsh (1992) who, after analysing the evidence about the short termism of companies in countries with the market-based model of financial organisation, concludes...
that short termism could be a myth instead of a real problem (10). It could be true that directors believe in that myth and so they operate accordingly. But, according to Marsh, there are other explanations for the international differences observed at investment levels. Among others, he emphasises supply side factors, such as education, working force behaviour and productivity, engineering and product design skills, management quality, macroeconomic policies, etc.

Anyhow, there is an open debate about the relation between the model of financial system and the firm's capacity of innovation. Two theoretical hypotheses can be pointed out:

i) Allen (1993) argues that the type of financial system that is suitable for traditional industries - where there is a wide consensus on how a firm should be managed - is very different from dynamic industries where there is not a wide agreement about the best managerial action. In particular, it has been proposed that banks are suitable for traditional industries, where standard manufacturing production takes place, and there are known skills that have to be applied. The market-based model of the Anglo-Saxon system is suitable for dynamic industries, with corporate activities heavily dependent on the assessments of future outcomes of different investment strategies; we may associate these activities with more high-technology business such as biotechnology.

ii) In contrast, Bhattacharya and Chiesa (1995) analyse the incentives to invest in R&D with bank monitoring and information acquisition in long-term bank-borrower relationships. They extend previous models to proprietary information environments in which the private value of research knowledge in a firm is reduced by the revelation of this knowledge to the firm's competitors. The prospect of disclosure of proprietary knowledge to an outsider which in turn creates a free-rider problem regarding the firm's incentive to invest in R&D. This problem does not arise under bank financing, especially with long term debt. The bank-based model of Germany and Japan provides greater privacy for R&D information generated by borrowers and it can have a positive impact R&D on expenses (11).

4.2. The structure of assets

Then, the aggregation of the R&D data and the nature of the R&D expenses make it difficult to draw conclusions in one direction or another. But, we can explore some hypotheses about the relation between the specificity level of the corporate asset structure and the model of financial system. In a broad sense, fixed assets have fewer alternative uses than current assets. Then, the higher the pro-

10. Notwithstanding, there are two academic debates on the issue. The first one argues about the take-over effect higher in USA and UK on the stability of the contractual relationships among stakeholders and on the long term investment decisions. The second one is about the consequences of long term investment decisions on the managers remuneration and reward systems.

11. Bhattacharya in 1994 wrote that the hypothesis of Allen does not explain why USA service firms with well known technologies choose financial policies that require a more frequent issuance of equity and market debt. In contrast, firms like IBM, where R&D expenses and technology are very important, do not issue equity and market debt so frequently. Previously, Cable (1985) had emphasised the importance of information-easing mechanisms for the contribution of German universal banks to positive industrial performance.
The market-based financial system appears best suited for those economic organisations with important fixed assets.

Portion of fixed assets the lower the flexibility of a company to allocate its financial resources. In the event of bankruptcy and liquidation, the firm's fixed assets face a greater loss in value and preemptive claims of lenders against such assets afford limited protection. Consequently, the cost of financing these assets with debt will increase (Williamson, 1988). Thus, there could be a trade off between the relative significance of the fixed assets and the financial leverage level of the firm. At the same time, there tends to be a correlation between financial leverage and the ratio of the bank financing over total debt. Consequently, a bigger volume of fixed assets would imply a lower proportion of banking debt. In other words, the market-based financial system is best suited for those economic organisations with important fixed assets. Despite the monitoring and the long term relationships of banks with their borrowers, these financial institutions increase their liquidity risk if, systematically, the corporate investment financed by them has a high risk of lock up funds.

Figures 6 and 7 give empirical evidence supporting this hypothesis. USA and UK firms have low levels of financial leverage and bank financing, and they show low flexible structure of assets, i.e. a high level of operating leverage, measured by the ratio of fixed assets over total assets. In contrast, companies from Italy and Germany have a higher level of financial leverage and banking debt along with a lower operating leverage. Japanese and Spanish firms do not have a clear correlation among these variables. Perhaps, an explanation of this anomaly would require further analysis and longer series data.

**Figure 6.** Fixed assets and financial leverage

![Figure 6. Fixed assets and financial leverage](image_url)

Source: B.A.C.H. Average 1985-1993
Economies in which banks do not face sizeable competition have a greater ability to smooth asset returns over time.

4.3. Economic performance and volatility

The relationship between the design of the financial system and the economic performance stability of firms is another relevant topic. Recently, Allen and Gale (1995) have shown that bank-based economies in which banks do not face sizeable competition from financial markets have a greater ability than market-dominated economies to smooth asset returns over time. Their model presents an economy in which the incompleteness of financial markets leads to under investment in safe assets; however, for a broad class of welfare functions, the optimum requires the holding of large safe assets to smooth asset returns over time. They argue that a long-lived intermediary can probably carry out the optimum.

At this point, it is useful to remember the delegated monitoring function of banks and the long term implicit contracts between these institutions and their borrowers. Therefore, banks will try to diminish the moral hazard risk from the borrower's opportunistic behaviour. For this purpose, banks have better information on the firm's strategy and its likely performance. They will use the information to control the management and to limit transactions against their interests, such as high risk investments. The banks presence on the board of directors, the constraints on the debt contracts and the renegotiation of debt contracts are mechanisms to control and solve moral hazard problems. Then, those firms with more bank financing would have a higher probability of lower economic risk, measured by the volatility of their return on assets (ROA).
Figure 8 shows a portrait of the relation between ROA variability, measured by its standard deviation, and the ratio of banking debt over total debt for the OECD countries of the sample (see appendix V). Firms from Germany, with a financial system dominated by banks, have a low variability in their return on assets. In contrast, the UK firms, with a financial system dominated by financial markets, have a high variability of their return on assets [12]. French firms behave like the British, whereas firms from the USA, Italy and Japan are placed between the two ends. Nevertheless, USA and Italian firms are nearer to British firms values whereas Japanese firms have values of their return on assets variability nearer to German companies. The empirical results seem to validate the hypothesis. The Spanish companies were the only exception. Thus, the financial system of Spain is dominated by banks, but the volatility of their corporate ROA is not far away from British, French or USA firms. An explanation of this anomaly would require further analysis and better data.

5. Final remarks

During the last decades we have seen a deep and accelerating transformation of the developed countries' financial systems, particularly those of EU, Japan and USA. The core of this financial revolution can be placed in the financial services industry globalisation process. The globalisation is not only the internationalisation of firms' operations but also the result of the industry changing forces and, at the same time, the key point of the interaction among them. The main changing forces of the financial revolution are: the changes in the economic environment and in the level of competition, deregulation, technology, and the bigger role played by market forces. Within this gene-

---

12. Since the ROA is obtained in nominal terms, its higher or lower volatility may be -at least partially- a simple consequence of the degree of variability of the inflation rate in general countries; this fact makes the interpretation of the empirical evidence presented above more difficult. However, it is worth to note that, for instance, in the most extreme two cases, the inclusion of this variable does not seem to violate the conclusions shown above: that is, during the years of the period analysed, the variability of the inflation rate was greater in Germany than in United Kingdom (see Main Economic Indicators by the OECD).
Is there a convergence between the market-based models of financial organisation and the bank-based, although in the sense of moving more towards the first model?

From this point, we wonder if there is a convergence between the two models of financial organisation analysed above - the market-based and the bank-based -, although in the sense of moving more towards the first model (13). Thus, for instance, we have introduced some empirical evidence about a trend towards the integration of both models on the grounds of financial leverage, traditionally one of their main differences. Furthermore, there is a broad progress in the development of securities markets in almost every country. Germany and Japan, two of the most archetypal examples of the bank-based model, show a growth in the relevance of the debt market in their firms, at least until the 90's economic crisis. In contrast, US firms have increased their bank financing during the second half of the 80's.

Absolutely, the path of globalization has not been homogeneous among the developed countries. Indeed, some countries have reduced the pace of reforms during the last few years. Then, logically the data do not present definitive conclusions about the convergence of the two models. Notwithstanding, before there can be convergence of the two models there will be a period over which: i) the external control mechanism, the corporate control market and the market for managers would be improving their efficiency; ii) the discretion of management, within the specialisation process, could be large and the agency costs very high; iii) the regulation should offer the legal requirements needed for institutional agreements; and iv) the weight of bank financing is not easy to reduce. Furthermore, the change of focus could modify the guarantees and pledges of the contractual relationships, granting different incentives to the stakeholders.

In this work, the introduction of variables that represent the ownership and control structure has allowed a relative improvement in the description of the firms financial structure. Indeed, from our data, continental and Japanese companies show a higher ownership concentration than British and, mainly, USA firms. They also indicate a more prominent role of banks, either as important owners or as debt suppliers. These facts imply two sorts of corporate governance, with different incentives.

13. The convenience of the process towards a system dominated by the market can be justified when it considers that which Jensen (1993) intends as the modern industrial revolution. The failure of the internal control systems in dealing with the deep changes of the last decades in technology, regulation, market globalization and economic systems is one of the evidence. As Jensen points out, the role of the market in the corporate control on the 80's have been beneficial for the shareholders, even though of the excess carried out. These excesses, with the divulging and acquiescence of managers and politicians, have been used as arguments in favour of a re-regulation of the financial markets. The systems of internal control have not been as effective as it was expected. However, it is worth to try to understand how these systems work and how they have to be improved in order to drive the strategies of the companies to the creation of value for the shareholders. Jensen points out that this task is one of the most rewarding field of economic and financial research.
and supervision problems. In the first, distinctive of a market-oriented financial system, it gives emphasis to the delegation to managers for strategic decisions and places its trust in the market to reduce the agency problems associated with the separation of ownership and control. On the other hand, the second one, which is usual in a bank-oriented financial system, is characterised by a greater implication of the owners in the management and by the control of the banks. In this situation, even though the agency costs are lower, it is more difficult to diversify the risk and to achieve the benefits related to the specialisation of functions.

Going further, it is in the interest of this research to analyse the relationship between the observed variety of financial and contractual structures and the trends on the real decisions taken. Although it is an issue with little empirical evidence, our results show two main points. First, there are no clear conclusions regarding the hypothesis that the market-based model leads to short-termism in R&D expenses, although this model is better suited for those economic organisations with a high ratio of fixed assets over total assets. Second, there is some empirical evidence for the hypothesis that control by banks over corporate investments reduces the economic risk, measured as the volatility of firms return on assets.

Finally, a warning about our results. The use of the B.A.C.H. database and some other aggregated data could raise methodological problems in the comparative-static analysis performed, given the short period available in our sample. Nonetheless, this is one of the few databases available for international comparisons, such as the one performed in this study.
References


### Appendix I

**Main Features of National Data (B.A.C.H. Data)**

<table>
<thead>
<tr>
<th>Country</th>
<th>Provided by</th>
<th>Period</th>
<th>nº of industries</th>
<th>nº of items</th>
<th>nº of firms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Germany</td>
<td>Deutsche Bundesbank</td>
<td>1971-1990</td>
<td>21</td>
<td>54</td>
<td>71 000</td>
</tr>
<tr>
<td>France</td>
<td>Centrale de Bilans (Banque de France)</td>
<td>1984-1991</td>
<td>56</td>
<td>329</td>
<td>18 000</td>
</tr>
<tr>
<td>Italy</td>
<td>Centrale dei Bilanci</td>
<td>1982-1991</td>
<td>89</td>
<td>215</td>
<td>29 000</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Statistic division/D.T.I (Central Statistical Office)</td>
<td>1982-1990</td>
<td>31</td>
<td>107</td>
<td>3 200</td>
</tr>
<tr>
<td>Spain</td>
<td>Central de Balances (Banco de España)</td>
<td>1982-1991</td>
<td>68</td>
<td>614</td>
<td>7 400</td>
</tr>
<tr>
<td>Japan</td>
<td>Ministry of Finance</td>
<td>1975-1991</td>
<td>44</td>
<td>137</td>
<td>20 000</td>
</tr>
<tr>
<td>USA</td>
<td>Bureau of Census. Department of Commerce</td>
<td>1983-1992</td>
<td>34</td>
<td>69</td>
<td>7 500</td>
</tr>
</tbody>
</table>

Source: B.A.C.H.
## Appendix II


|        | Equity/
|        | Total | Internal |
|        | Asset | Financing/ |        |        | Debit/
|        |       | Av. Total Asset |        |        | Total Asset |
|        |       | (Total assets) |        |        | (Total assets) |
|        |       | (Average total assets) |        |        | (Long term debt + short term debt) |
|        |       |                  |        |        | Total assets |
|        |       |                  |        |        | Total assets |
|        |       |                  |        |        | Total assets |
|        |       |                  |        |        | Total assets |
|        |       |                  |        |        | Total assets |
|        |       |                  |        |        | Total assets |
|        |       |                  |        |        | Total assets |
|        |       |                  |        |        | Total assets |
|        |       |                  |        |        | Total assets |
|        |       |                  |        |        | Total assets |

|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |

|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |

|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |

|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |

|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |

## France (1989)

### FRANCE 1989

|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |

## Germany (1989)

### GERMANY 1989

|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |

## Italy (1989)

### ITALY 1989

|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |

## Japan (1989)

### JAPAN 1989

|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |
|        |        |                  |        |        | Total assets |

## Notes

- The table above presents financial data for the manufacturing industry in various countries over the period 1985-1993.
- The data includes equity, internal financing, debits, bank financing, long-term debt, and market debt.
- The table further analyzes the financial indicators such as operating profit, total assets, and total capital.
- The data is presented in a tabular format with columns for each country and years, facilitating an easy comparison and analysis of the financial performance over the specified period.
<table>
<thead>
<tr>
<th></th>
<th>Equity/Total Asset</th>
<th>Internal Financing/Av. Total Asset</th>
<th>Debt/Total Asset</th>
<th>Bank Financing/Total Debt</th>
<th>Long-Term Debt/Total Debt</th>
<th>Market Debt/Total Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>0.3407</td>
<td>0.0450</td>
<td>0.6187</td>
<td>0.5016</td>
<td>0.2900</td>
<td>0.2735</td>
</tr>
<tr>
<td>1986</td>
<td>0.3604</td>
<td>0.0595</td>
<td>0.6022</td>
<td>0.4444</td>
<td>0.2791</td>
<td>0.2960</td>
</tr>
<tr>
<td>1987</td>
<td>0.3931</td>
<td>0.0802</td>
<td>0.5643</td>
<td>0.4069</td>
<td>0.2588</td>
<td>0.3102</td>
</tr>
<tr>
<td>1988</td>
<td>0.4229</td>
<td>0.1031</td>
<td>0.5291</td>
<td>0.3307</td>
<td>0.2559</td>
<td>0.3665</td>
</tr>
<tr>
<td>1989</td>
<td>0.4515</td>
<td>0.1017</td>
<td>0.5055</td>
<td>0.3273</td>
<td>0.2293</td>
<td>0.3627</td>
</tr>
<tr>
<td>1990</td>
<td>0.4068</td>
<td>0.0671</td>
<td>0.5278</td>
<td>0.3560</td>
<td>0.2233</td>
<td>0.3563</td>
</tr>
<tr>
<td>1991</td>
<td>0.3930</td>
<td>0.0494</td>
<td>0.5584</td>
<td>0.3323</td>
<td>0.2355</td>
<td>0.2227</td>
</tr>
<tr>
<td>1992</td>
<td>0.3610</td>
<td></td>
<td>0.5950</td>
<td>0.3610</td>
<td>0.2504</td>
<td>0.2230</td>
</tr>
<tr>
<td>1993</td>
<td>0.3111</td>
<td></td>
<td>0.6270</td>
<td>0.3310</td>
<td>0.2480</td>
<td>0.2840</td>
</tr>
<tr>
<td>Av.</td>
<td>0.3834</td>
<td>0.0723</td>
<td>0.5698</td>
<td>0.3790</td>
<td>0.2523</td>
<td>0.2994</td>
</tr>
<tr>
<td>SD</td>
<td>0.0446</td>
<td>0.0236</td>
<td>0.0434</td>
<td>0.0602</td>
<td>0.0220</td>
<td>0.0554</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>0.4653</td>
<td>0.0882</td>
<td>0.4878</td>
<td>0.3155</td>
<td>0.2500</td>
<td>0.2541</td>
</tr>
<tr>
<td>1986</td>
<td>0.4460</td>
<td>0.1103</td>
<td>0.5045</td>
<td>0.2211</td>
<td>0.2711</td>
<td>0.6660</td>
</tr>
<tr>
<td>1987</td>
<td>0.4488</td>
<td>0.1115</td>
<td>0.5052</td>
<td>0.1888</td>
<td>0.2571</td>
<td>0.6807</td>
</tr>
<tr>
<td>1988</td>
<td>0.4528</td>
<td>0.1131</td>
<td>0.5066</td>
<td>0.2361</td>
<td>0.2723</td>
<td>0.6681</td>
</tr>
<tr>
<td>1989</td>
<td>0.4167</td>
<td>0.1074</td>
<td>0.5373</td>
<td>0.2734</td>
<td>0.3105</td>
<td>0.6812</td>
</tr>
<tr>
<td>1990</td>
<td>0.3956</td>
<td>0.0877</td>
<td>0.5037</td>
<td>0.2805</td>
<td>0.3280</td>
<td>0.6866</td>
</tr>
<tr>
<td>Av.</td>
<td>0.4375</td>
<td>0.1030</td>
<td>0.5075</td>
<td>0.2526</td>
<td>0.2815</td>
<td>0.6061</td>
</tr>
<tr>
<td>SD</td>
<td>0.0260</td>
<td>0.0118</td>
<td>0.0161</td>
<td>0.0459</td>
<td>0.0309</td>
<td>0.1727</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1985</td>
<td>0.4597</td>
<td>0.0923</td>
<td>0.4074</td>
<td>0.1903</td>
<td>0.5388</td>
<td>0.7150</td>
</tr>
<tr>
<td>1986</td>
<td>0.4435</td>
<td>0.0897</td>
<td>0.4257</td>
<td>0.2066</td>
<td>0.5640</td>
<td>0.7308</td>
</tr>
<tr>
<td>1987</td>
<td>0.4293</td>
<td>0.1007</td>
<td>0.4388</td>
<td>0.2104</td>
<td>0.5742</td>
<td>0.7388</td>
</tr>
<tr>
<td>1988</td>
<td>0.4177</td>
<td>0.1066</td>
<td>0.4535</td>
<td>0.2311</td>
<td>0.5988</td>
<td>0.7518</td>
</tr>
<tr>
<td>1989</td>
<td>0.4022</td>
<td>0.0934</td>
<td>0.4672</td>
<td>0.2300</td>
<td>0.6179</td>
<td>0.7591</td>
</tr>
<tr>
<td>1990</td>
<td>0.3996</td>
<td>0.0807</td>
<td>0.4687</td>
<td>0.2338</td>
<td>0.6167</td>
<td>0.7702</td>
</tr>
<tr>
<td>1991</td>
<td>0.3980</td>
<td>0.0646</td>
<td>0.4641</td>
<td>0.2191</td>
<td>0.6251</td>
<td>0.7752</td>
</tr>
<tr>
<td>1992</td>
<td>0.3680</td>
<td>0.0512</td>
<td>0.5120</td>
<td>0.1580</td>
<td>0.4760</td>
<td>0.7199</td>
</tr>
<tr>
<td>1993</td>
<td>0.3630</td>
<td>0.0500</td>
<td>0.5600</td>
<td>0.1450</td>
<td>0.4700</td>
<td>0.7330</td>
</tr>
<tr>
<td>Av.</td>
<td>0.4090</td>
<td>0.0897</td>
<td>0.4664</td>
<td>0.2027</td>
<td>0.5646</td>
<td>0.7449</td>
</tr>
<tr>
<td>SD</td>
<td>0.0322</td>
<td>0.0138</td>
<td>0.0460</td>
<td>0.0323</td>
<td>0.0591</td>
<td>0.0226</td>
</tr>
</tbody>
</table>

Source: B.A.C.H.
Appendix III

Average test
This appendix shows the average value of the ratios for each country and the results of the t-test (p-value in brackets). The t-test is used to test the hypothesis of mean equality for each pair of countries. When p-values are above a certain threshold (> 0.1) the mean equality hypothesis between the two countries is accepted.

<table>
<thead>
<tr>
<th>Debt/Total Assets</th>
<th>Average</th>
<th>GERMANY</th>
<th>FRANCE</th>
<th>ITALY</th>
<th>UK</th>
<th>JAPAN</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERMANY</td>
<td>0.5135</td>
<td>8.57</td>
<td>0.90</td>
<td>6.44</td>
<td>22.94</td>
<td>0.5665</td>
<td>0.4664</td>
</tr>
<tr>
<td>FRANCE</td>
<td>0.6430</td>
<td>-31.12</td>
<td>-0.40</td>
<td>6.44</td>
<td>22.94</td>
<td>0.4664</td>
<td>0.5665</td>
</tr>
<tr>
<td>ITALY</td>
<td>0.5075</td>
<td>0.90</td>
<td>6.44</td>
<td>0.01</td>
<td>22.94</td>
<td>0.4664</td>
<td>0.5665</td>
</tr>
<tr>
<td>UK</td>
<td>0.6475</td>
<td>-36.51</td>
<td>-0.36</td>
<td>0.728</td>
<td>0.264</td>
<td>12.01</td>
<td>9.21</td>
</tr>
<tr>
<td>JAPAN</td>
<td>0.4664</td>
<td>4.08</td>
<td>5.59</td>
<td>19.76</td>
<td>9.07</td>
<td>9.21</td>
<td>5.41</td>
</tr>
<tr>
<td>USA</td>
<td>0.5698</td>
<td>-3.71</td>
<td>3.79</td>
<td>6.34</td>
<td>2.12</td>
<td>5.91</td>
<td>5.41</td>
</tr>
<tr>
<td>SPAIN</td>
<td>0.5135</td>
<td>8.57</td>
<td>0.90</td>
<td>6.44</td>
<td>22.94</td>
<td>0.4664</td>
<td>0.5665</td>
</tr>
</tbody>
</table>

Bank Financing/Total Debt

<table>
<thead>
<tr>
<th>Average</th>
<th>GERMANY</th>
<th>FRANCE</th>
<th>ITALY</th>
<th>UK</th>
<th>JAPAN</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERMANY</td>
<td>0.2985</td>
<td>-7.39</td>
<td>0.149</td>
<td>8.15</td>
<td>0.05</td>
<td>0.3026</td>
</tr>
<tr>
<td>FRANCE</td>
<td>0.2084</td>
<td>-7.39</td>
<td>0.149</td>
<td>8.15</td>
<td>0.05</td>
<td>0.3026</td>
</tr>
<tr>
<td>ITALY</td>
<td>0.3042</td>
<td>-1.49</td>
<td>0.179</td>
<td>-8.05</td>
<td>0.032</td>
<td>0.2526</td>
</tr>
<tr>
<td>UK</td>
<td>0.2526</td>
<td>2.37</td>
<td>0.064</td>
<td>-1.58</td>
<td>2.94</td>
<td>0.4006</td>
</tr>
<tr>
<td>JAPAN</td>
<td>0.4006</td>
<td>-2.24</td>
<td>0.161</td>
<td>-8.39</td>
<td>5.68</td>
<td>0.5126</td>
</tr>
<tr>
<td>USA</td>
<td>0.2027</td>
<td>9.18</td>
<td>0.626</td>
<td>7.93</td>
<td>1.72</td>
<td>0.3790</td>
</tr>
<tr>
<td>SPAIN</td>
<td>0.3790</td>
<td>-3.75</td>
<td>0.007</td>
<td>-3.79</td>
<td>4.58</td>
<td>2.12</td>
</tr>
</tbody>
</table>

Market Debt/Total Debt

<table>
<thead>
<tr>
<th>Average</th>
<th>GERMANY</th>
<th>FRANCE</th>
<th>ITALY</th>
<th>UK</th>
<th>JAPAN</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERMANY</td>
<td>0.4416</td>
<td>1.83</td>
<td>0.08</td>
<td>1.16</td>
<td>0.278</td>
<td>0.4401</td>
</tr>
<tr>
<td>FRANCE</td>
<td>0.4580</td>
<td>1.83</td>
<td>0.08</td>
<td>1.16</td>
<td>0.278</td>
<td>0.4401</td>
</tr>
<tr>
<td>ITALY</td>
<td>0.4401</td>
<td>1.83</td>
<td>0.08</td>
<td>1.16</td>
<td>0.278</td>
<td>0.4401</td>
</tr>
<tr>
<td>UK</td>
<td>0.4401</td>
<td>1.83</td>
<td>0.08</td>
<td>1.16</td>
<td>0.278</td>
<td>0.4401</td>
</tr>
<tr>
<td>JAPAN</td>
<td>0.4298</td>
<td>0.35</td>
<td>0.88</td>
<td>0.45</td>
<td>1.65</td>
<td>0.4298</td>
</tr>
<tr>
<td>USA</td>
<td>0.4298</td>
<td>0.35</td>
<td>0.88</td>
<td>0.45</td>
<td>1.65</td>
<td>0.4298</td>
</tr>
<tr>
<td>SPAIN</td>
<td>0.3236</td>
<td>2.45</td>
<td>0.040</td>
<td>2.65</td>
<td>2.97</td>
<td>0.3236</td>
</tr>
</tbody>
</table>
Appendix IV

Expenditure on research and development in the business enterprise sector (as a percentage of GDP). Series and average test.

This appendix shows the R&D/GDP average value for each country and the results of the t-test (p-value in brackets). The t-test is used to test the hypothesis of mean equality for each pair of countries. When p-values are above a certain threshold (> 0.1) the mean equality hypothesis between the two countries is accepted.

<table>
<thead>
<tr>
<th></th>
<th>Average</th>
<th>GERMANY</th>
<th>FRANCE</th>
<th>ITALY</th>
<th>UK</th>
<th>JAPAN</th>
<th>USA</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERMANY</td>
<td>1.93</td>
<td>-5.69 (0.0)</td>
<td>16.7 (0.0)</td>
<td>46.6 (0.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRANCE</td>
<td>1.41</td>
<td>-7.84 (0.0)</td>
<td>1.53 (0.16)</td>
<td>-30.7 (0.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITALY</td>
<td>0.72</td>
<td>1.11 (0.4)</td>
<td>17.2 (0.0)</td>
<td>10.9 (0.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>1.48</td>
<td>2.04 (0.3)</td>
<td>36.2 (0.0)</td>
<td>22.2 (0.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAPAN</td>
<td>1.99</td>
<td>-0.90 (0.4)</td>
<td>57.7 (0.0)</td>
<td>34.8 (0.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>2.04</td>
<td>1.7 (0.0)</td>
<td>29.1 (0.0)</td>
<td>-57.7 (0.0)</td>
<td>-34.8 (0.0)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SPAIN</td>
<td>0.41</td>
<td>19.3 (0.0)</td>
<td>89.6 (0.0)</td>
<td>29.1 (0.0)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: OECD, 1995 and 1992

Business Enterprise R&D/GDP (%)

<table>
<thead>
<tr>
<th></th>
<th>GERMANY</th>
<th>FRANCE</th>
<th>ITALY</th>
<th>UK</th>
<th>JAPAN</th>
<th>USA</th>
<th>SPAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1985</td>
<td>1.99</td>
<td>1.32</td>
<td>0.64</td>
<td>1.44</td>
<td>1.85</td>
<td>2.13</td>
<td>0.3</td>
</tr>
<tr>
<td>1986</td>
<td>2.00</td>
<td>1.31</td>
<td>0.66</td>
<td>1.56</td>
<td>1.83</td>
<td>2.1</td>
<td>0.34</td>
</tr>
<tr>
<td>1987</td>
<td>2.08</td>
<td>1.34</td>
<td>0.68</td>
<td>1.51</td>
<td>1.86</td>
<td>2.07</td>
<td>0.35</td>
</tr>
<tr>
<td>1988</td>
<td>2.07</td>
<td>1.36</td>
<td>0.7</td>
<td>1.48</td>
<td>1.94</td>
<td>2.04</td>
<td>0.41</td>
</tr>
<tr>
<td>1989</td>
<td>2.08</td>
<td>1.41</td>
<td>0.73</td>
<td>1.5</td>
<td>2.08</td>
<td>1.98</td>
<td>0.42</td>
</tr>
<tr>
<td>1990</td>
<td>2.02</td>
<td>1.46</td>
<td>0.76</td>
<td>1.51</td>
<td>2.17</td>
<td>2</td>
<td>0.49</td>
</tr>
<tr>
<td>1991</td>
<td>1.81</td>
<td>1.48</td>
<td>0.77</td>
<td>1.42</td>
<td>2.16</td>
<td>2.07</td>
<td>0.49</td>
</tr>
<tr>
<td>1992</td>
<td>1.7</td>
<td>1.48</td>
<td>0.77</td>
<td>1.43</td>
<td>2.06</td>
<td>2.04</td>
<td>0.46</td>
</tr>
<tr>
<td>1993</td>
<td>1.66</td>
<td>1.51</td>
<td>0.75</td>
<td>1.44</td>
<td>1.93</td>
<td>1.95</td>
<td>0.44</td>
</tr>
<tr>
<td>1994</td>
<td>1.54</td>
<td>1.5</td>
<td>0.7</td>
<td>1.43</td>
<td>1.91</td>
<td>1.87</td>
<td>0.47</td>
</tr>
<tr>
<td>Av.</td>
<td>1.93</td>
<td>1.41</td>
<td>0.72</td>
<td>1.48</td>
<td>1.99</td>
<td>2.04</td>
<td>0.41</td>
</tr>
<tr>
<td>SD</td>
<td>0.17</td>
<td>0.08</td>
<td>0.05</td>
<td>0.05</td>
<td>0.13</td>
<td>0.06</td>
<td>0.07</td>
</tr>
</tbody>
</table>

Appendix V

Return of assets and variance test (F-ratio)

This appendix shows the ROA standard deviation and average values for each country and the simplified results of the F-test (confidence levels to reject the variance equality hypothesis). The F-test is used to test the acceptance of the hypothesis of variance equality for each pair of countries. High values indicate a higher probability of rejecting the variance equality hypothesis between the two countries.

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th>GERMANY</th>
<th>FRANCE</th>
<th>ITALY</th>
<th>UK</th>
<th>JAPAN</th>
<th>USA</th>
<th>SPAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>GERMANY</td>
<td>0.00334</td>
<td>0.9998</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FRANCE</td>
<td>0.01635</td>
<td>0.9713</td>
<td>0.7932</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ITALY</td>
<td>0.01054</td>
<td>0.9999</td>
<td>0.2720</td>
<td>0.9838</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>0.01963</td>
<td>0.8615</td>
<td>0.9946</td>
<td>0.9039</td>
<td>0.9976</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>JAPAN</td>
<td>0.00387</td>
<td>0.9809</td>
<td>0.6828</td>
<td>0.0235</td>
<td>0.9266</td>
<td>0.8834</td>
<td></td>
<td></td>
</tr>
<tr>
<td>USA</td>
<td>0.01110</td>
<td>0.9997</td>
<td>0.2400</td>
<td>0.9334</td>
<td>0.4850</td>
<td>0.9880</td>
<td>0.8708</td>
<td></td>
</tr>
<tr>
<td>SPAIN</td>
<td>0.01546</td>
<td>0.9997</td>
<td>0.2400</td>
<td>0.9334</td>
<td>0.4850</td>
<td>0.9880</td>
<td>0.8708</td>
<td></td>
</tr>
</tbody>
</table>

ROA: (Net income + interest + tax)/Total assets

<table>
<thead>
<tr>
<th></th>
<th>GERMANY</th>
<th>FRANCE</th>
<th>ITALY</th>
<th>UK</th>
<th>JAPAN</th>
<th>USA</th>
<th>SPAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>0.05392</td>
<td>0.04759</td>
<td>0.05009</td>
<td>0.06529</td>
<td>0.06840</td>
<td>0.0427267</td>
<td></td>
</tr>
<tr>
<td>1983</td>
<td>0.05907</td>
<td>0.04995</td>
<td>0.05161</td>
<td>0.07450</td>
<td>0.06778</td>
<td>0.07472</td>
<td>0.0411569</td>
</tr>
<tr>
<td>1984</td>
<td>0.06046</td>
<td>0.04850</td>
<td>0.06142</td>
<td>0.08515</td>
<td>0.07283</td>
<td>0.09315</td>
<td>0.0585074</td>
</tr>
<tr>
<td>1985</td>
<td>0.06317</td>
<td>0.05274</td>
<td>0.06524</td>
<td>0.08891</td>
<td>0.06760</td>
<td>0.07576</td>
<td>0.0514487</td>
</tr>
<tr>
<td>1986</td>
<td>0.06106</td>
<td>0.06581</td>
<td>0.07052</td>
<td>0.11682</td>
<td>0.05364</td>
<td>0.07255</td>
<td>0.0604406</td>
</tr>
<tr>
<td>1987</td>
<td>0.05335</td>
<td>0.07795</td>
<td>0.06041</td>
<td>0.11494</td>
<td>0.06275</td>
<td>0.08037</td>
<td>0.0729719</td>
</tr>
<tr>
<td>1988</td>
<td>0.05763</td>
<td>0.08815</td>
<td>0.06461</td>
<td>0.11905</td>
<td>0.07223</td>
<td>0.08401</td>
<td>0.0850922</td>
</tr>
<tr>
<td>1989</td>
<td>0.05704</td>
<td>0.08900</td>
<td>0.05556</td>
<td>0.10940</td>
<td>0.06994</td>
<td>0.07444</td>
<td>0.0772008</td>
</tr>
<tr>
<td>1990</td>
<td>0.06099</td>
<td>0.07310</td>
<td>0.04662</td>
<td>0.09322</td>
<td>0.06669</td>
<td>0.06634</td>
<td>0.0504953</td>
</tr>
<tr>
<td>1991</td>
<td>0.06106</td>
<td>0.06581</td>
<td>0.07052</td>
<td>0.11682</td>
<td>0.05364</td>
<td>0.07255</td>
<td>0.0604406</td>
</tr>
<tr>
<td>Av.</td>
<td>0.05852</td>
<td>0.06517</td>
<td>0.05576</td>
<td>0.09636</td>
<td>0.06621</td>
<td>0.07498</td>
<td>0.06000</td>
</tr>
<tr>
<td>SD</td>
<td>0.00334</td>
<td>0.01635</td>
<td>0.01054</td>
<td>0.01963</td>
<td>0.00587</td>
<td>0.0111</td>
<td>0.01546</td>
</tr>
</tbody>
</table>

Source: B.A.C.H.
This paper discusses the weaknesses and shortcomings of the Stability Pact, agreed in December 1996 during the meeting of the European Council in Dublin. By focusing on the deficit GDP ratio, this contract among all the EU member countries can lead to an unintentional increase of public debt without violating the agreement. Another weakness of the Stability Pact is the missing relation between the initial purpose of reducing inflation and punitive sanctions. Punishment of a highly indebted EMU member country should only become effective if the inflation rate in the whole EMU is unacceptably high. A new structure to determine the penalty for EMU member countries is proposed that takes into account market oriented components such as GDP, inflation and interest rates. This ensures that, in high inflation periods, all governments reduce their debt according to their initial debt level, while in periods of low inflation, the pressure to reduce debt is low. In addition to this debt reduction concept, the salaries of the governors of the ECB should be tied to an incentive scheme, following the example of New Zealand.

Volker Köllmann, a German national, holds an Economics degree from the Rheinische Friedrich-Wilhelms-Universität, Bonn. During his studies, he visited the American University in Washington DC, where he participated in the Washington Semester Programme. After finishing his first degree, he spent the following academic year at the Advanced Studies Programme of International Economic Policy Research at the Institute for World Economics in Kiel, where he obtained an Advanced Studies Certificate. He has since started working in the strategy and investment planning unit of the German branch of Esso in Hamburg. Previous experience includes a three-month internship in 1993 with the Treuhandanstalt in Berlin.

Andri Kopperschmidt, also from Germany, holds a degree in Economics and Business Administration from the Ruhr-Universität, Bochum. During these studies, he attended courses at the International MBA programme of the Helsinki School of Economics and Administration. After finishing his first degree, he worked for three months as a consultant on a development project in Namibia. He then pursued the Advanced Studies Programme of International Economic Policy Research at the Institute for World Economics, Kiel, from which he obtained an Advanced Studies Certificate at the end of this academic year.
1. Introduction

In the discussion about the European Monetary Union (EMU), a major effort has been made to develop preconditions for an inflation-averse community. These efforts have concentrated on the five entrance criteria in the Maastricht Treaty aimed at evaluating the EU Member States’ monetary and fiscal performance. The intention of this procedure is to distinguish between eligible and non-eligible Member States, and to start the EMU only with countries that show a stable monetary and fiscal performance. Nevertheless, the final selection of the starting countries of the EMU remains a political decision by the European Council, because the Maastricht Treaty leaves room for a generous interpretation of the entrance criteria. In early 1998, the political decision about membership will be taken, with 1997 as the crucial reference year for the fulfillment of the monetary and fiscal entrance criteria. If the Council identifies enough countries to start the EMU, the single currency Euro will be introduced in January 1999.

The announced assessment of eligible countries has led to short-sighted budgeting actions to meet the criteria in 1997. Countries that want to be among the starting members are currently shaping their budgets in a creative way to meet the entrance criteria. A budgetary trick are payments of state-owned companies to the government’s budget in 1997, with the obligation to pay pensions for the company in the future. Italy plans to raise a Euro-Tax in 1997 and abolish it afterwards. Likewise, state-owned properties are sold and leased back, as in Belgium (Tett 1996). All these actions reduce the budget deficit and public debt in the reference year, but in the long run, the interest burden due to high public debt in some of the possible EMU member countries will remain, or even increase if they continue running high deficits.

In order to ensure long-term fiscal discipline, the EU has discussed a so-called Stability Pact for all EMU member countries. The rationale to do so is based on the economic assumption that the member countries’ deficit and debt policies affect monetary stability. Whether this assumption really holds is not discussed here. Rather, this paper analyses and discusses the current proposal for a Stability Pact, and proposes an alternative procedure.

2. The Dublin Agreement

At the meeting of the European Council in Dublin in December 1996, the negotiators agreed on a proposal for the Stability Pact. This control and sanction mechanism is a mixture of the procedures indicated in the Maastricht Treaty Art. 104c, the Waigel Proposal (Waigel 1995) and the Commission’s suggestions (EC-Commission 1996). The mutual agreement suggests a control mechanism for all EU-member states irrespective if they are in or out of the EMU. The member states, have to prepare and publish a yearly Stability
Program, while the non-members prepare a Convergence Program. These reports are to contain the budget planning and the development of the public debt for the following years.

The further aim is to keep inflation low by balanced budgeting or even a positive budget (Dublin Agreement 1996). This tries to ensure meeting the maximum of a 3% deficit to GDP ratio in recessions by means of automatic stabilizers.

The Council and the Commission examine the programs according to the fulfilment of the deficit criteria and, if an EMU member country seems to deviate from the 3% target, the Commission sends a recommendation to the respective country. If this recommendation is ignored or the measures undertaken are not sufficient to reduce the deficit, the Council can decide on the existence of an excessive deficit, which justifies sanctions. There are, however, exceptions which prevent the deficit country from facing sanctions. If the deficit occurs because of an exceptional event that is not generated by the government, or if the country has to cope with a severe economic crisis, meaning a yearly decline of 2% of GDP, then no sanctions are to be applied.

The sequence of events in the sanctioning procedure starts with the report of the Commission in response to the occurrence of an excessive deficit. In this report, the Council requests the Commission to send a recommendation to the deficit country to reduce the deficit. This would require the setting-up of sufficient measures within four months to reduce the deficit. If the measures are not sufficient or not imposed, sanctions can be demanded within ten months after the recognition of the excessive deficit. The whole procedure can be implemented faster, if the excessive deficit was created on purpose.

In the case of a deficit that exceeds 3% of GDP, the imposable sanctions are a deposit of 10% of the excess deficit, plus 0.2% of GDP, if the public debt to GDP ratio is above 60%.

3. A license to increase the public debt

The political and public discussion about fiscal constraints for the EMU after its start in 1999 focuses on deficit criteria, rather than on a member country's overall public debt. The Dublin Agreement addresses the debt ratio in only one article and sanctions an excessive debt with a deposit of 0.2% of GDP, irrespective the total amount of debt. This leads to the same punishment for Belgium and Finland, in spite of the fact that Finland has less than half of the Belgian debt ratio.

Such an imbalance is not reasonable on economic grounds. First, if there is a relation between fiscal criteria and price stability in the EMU at all, then it is because high public debt may produce inflation or at least inflation expectations. According to the monetary bail-out argument, the interest burden in a large member country, resulting from a high level of public debt, could lead to pressure on the ECB. Secondly, according to the fiscal bail-out argument, the interest burden resulting from a high level of public debt could lead to a solvency crisis and to financial pressure on other members of the EMU (von Hagen, Eichengreen 1996, p. 134; Buiter et al. 1993, pp. 78-80).

Whereas assuming that one member country of the EMU misses a specific deficit target like 3% of GDP only for two or three years in a row, this should neither have an impact on the monetary policy of the ECB, nor should this result in a cooperative international action to prevent a financial crisis.
If an EMU member country misses a specific deficit target for only a few years, this should neither have an impact on the monetary policy of the ECB, nor should this result in a cooperative international action to prevent a financial crisis.

Impacts on the EMU's monetary policy depend on the size of the highly indebted country, the number of all highly indebted countries and on the level of their debt. Impacts on the solvency situation of one member country depend on the country's interest burden and, therefore, on its level of debt. Thus, a more important question is, whether the debts of EMU member countries are rising on a long-term trend.

3.1 Simple convergence algebra

Analysis of effects should go beyond the simple statement that restricting budget deficits leads to a decrease in debt. This is only true for an existing high level of debt. It can be shown by using the equation $b = \frac{d'Y}{b'}$, where $b$ is the debt ratio, $d$ is the budget deficit to GDP ratio (deficit ratio), $Y$ is the nominal GDP, and "%" means a percentage change. Hence, a balanced budget, which means $d = 0$, implies a decrease of the debt ratio equal to the nominal growth (1). In addition, it depends on the level of debt and on whether the debt decreases or increases. For example, assume for both Belgium and France a 5% nominal growth in GDP and a 3% deficit ratio in 1997. In Belgium, this would imply a decreasing debt ratio by about 2.7% or 3.6 percentage points in 1997, starting from a level of a 132% debt ratio at the end of 1996. In France, however, the 1997 debt ratio would increase slightly by about 0.34% or 0.19 percentage points, starting from a level of a 56% debt ratio at the end of 1996 (2).

This relation between debt and deficit ratios has important implications for the EMU and a Stability Pact. In Maastricht, the choice of a 3% deficit criterion and a 60% debt criterion implies the assumption of a long-term growth trend in nominal GDP of 5% (Gros 1996, p. 80; De Grauwe 1994, p. 158). Assuming a more realistic long-term growth in nominal GDP of 4%, then, following a 3% deficit rule every year means that in the long run the debt ratio converges to 75%.

Under the Stability Pact, 3% would be an upper limit and one can debate whether it is reasonable to assume a long-run average deficit of 3%. There are, however, many possibilities to exceed the 3% limit, due to political bargaining and the lack of strict and automatic rules or sanctions. For example, a government may plan to run a high deficit in the current budget year following a two-year strategy, including a deficit below 3%, in the next budget. On average, this could lead to an even higher figure than 3%. Assuming an average of 3% for at least some of the member countries of the EMU seems not to be too pessimistic. So, even under a relatively strict sanction-mechanism in a Stability Pact, it is possible for countries like France and Germany to increase their debt ratio significantly above 60% without facing any consequences. Therefore, the likely result of the current discussion is a political license for France and Germany to increase their debt after 1998 even further, given a nominal GDP growth of less than 5% per annum (3). It cannot be said that this was the original purpose of the Stability Pact, but nevertheless, it can become a very important, perhaps unintentional, implication.

1. For a further discussion of this (approximate) relationship see Lehment, Scheide 1995, pp. 21-22.
3. The same analysis applies to Finland and Luxembourg, both being other likely members of the EMU. But France and Germany are the leaders in the discussion about a Stability Pact, therefore the analysis focuses on these two. France has an estimated debt ratio of 56.2% at the end of 1996. Germany of 60.8%, Finland of 61.6%, Luxembourg of 6.7%, according to the IMF World Report October 1996. If Spain joins the EMU in 1999, it could also increase its debt further, starting from a ratio of 67.1% at the end of 1996.
3.2 Reasons for abandoning debt criteria

If the political license described above is in fact unintentional, the question arises if there are other reasons for abandoning debt criteria. Two reasons stand out. The first is public opinion within the EU, but in particular in Germany. The important political players in the EU do not want to draw public attention to the likelihood that highly indebted countries, Belgium above all, will probably be part of the EMU. In Germany, the situation is slightly different: According to Commission estimates, it is already obvious that the German government will fail to meet the debt criterion in 1997, even if it manages to fulfil the deficit criterion. Therefore, the German government is not interested in a discussion about the level of debt, otherwise it could lose its reputation of a "paragon". So, a Stability Pact proposal including debt limits has been not politically opportune.

The second reason is the development of the whole Maastricht process. In spring 1998, the Council will decide about the entrance criteria on the road to the final step of the EMU. Originally, the Maastricht Protocols laid down the debt criterion of 60% in addition to the deficit criterion in order to put an extra burden on highly indebted countries like Belgium or Italy. By doing so, these countries are implicitly forced by European law not only to fulfil the 3% deficit limit but to run even lower deficits (Lehment, Scheide 1995, p. 22). Therefore, at a first glance, abandoning the debt criterion in the Stability Pact proposals could mean a concession to still highly indebted countries, as it becomes more and more likely that a country like Belgium cannot be excluded from the EMU in 1999. But in the long-run perspective after the start of the EMU, that first glance is misleading. Belgium, above all, would be better off facing a debt criterion instead of the 3% deficit criterion. The upper limit of 3% implies that Belgium has to run huge primary surpluses because of its high interest burden (4). Following De Grauwe (1996, p. 25) in his criticism of the fiscal entrance criteria on the road to 1999, deficit criteria in a Stability Pact are a logical consequence of the Maastricht process: The entrance criteria were introduced by Germany in order to keep the EMU small and, in particular, to keep high-inflation countries and highly indebted countries outside the EMU. The continuation of this idea implies that, if a highly indebted country like Belgium enters the EMU - which is assumed here - then this country should take the necessary steps to reduce debt much further than other countries in the first years of the EMU.

3.3 Implications

On the one hand, constraining a country like Belgium in such a strong way does not build up credibility for the EMU as a whole. If necessary, the governments can gain credibility by excluding Belgium or Italy in the final decision about membership in spring 1998. But if highly indebted countries are included, then it is the task of the ECB to gain credibility in monetary policy issues. On the other hand, punishing a country like Belgium for the mistakes of former governments that hoarded up debt cannot be a goal of the proposed "community of solidarity" (Waigel 1995, p. 1). This does not mean that high debts are acceptable in any way. But the aim must rather be a reduction of debt in all member countries of the EMU, step by step in a long-run perspective. In particular, the large and influential countries like Germany and France must be prevented from increasing their debt ratios up to 70, 75 or 80%.

4. In fact, starting from a level of 130% debt ratio, Belgium could lower its debt by running a deficit ratio smaller than 5.2%, given a 4% growth in nominal output, or running a deficit ratio smaller than 6.5%, given a 5% growth in nominal output, respectively.
4. An alternative proposal

In spite of the legal and political restrictions contained in the EC Treaty and the current negotiations, this section proposes an alternative procedure in order to bring the discussion about a Stability Pact back to a more economically based issue: Reducing debt and building-up a low-inflation EMU instead of political bargaining and arbitrarily chosen deficit measures. The inclusion of market measures is superior to a rigid number like 3%. To manage all this, a two-part procedure is desirable.

4.1 Reducing debt

In the first part, only the member countries of the EMU should agree on a well-defined procedure to lower their overall public debt to GDP ratio. Every year, they commit themselves to change their debt ratio in the following year by a certain percentage measure, facing automatic sanctions if they fail to do so. This measure is the sum of three components, first the inflation-component, second the GDP-component, and third the interest-rate-component. The first component is EMU-wide the same for all member countries, the latter are country-specific.

The inflation-component is the positive deviation from 2% (5) of the whole EMU's inflation rate. If the inflation is below 2% in the whole EMU, the inflation component becomes zero. The GDP-component is derived as follows. If a member country's growth of real GDP is above 2%, the GDP-component is the positive deviation from 2%. In the case of a real GDP growth between 0 and 2%, the GDP-component becomes zero. Whereas, given an economic slow-down, i.e. a change in real GDP below 0%, the GDP-component is this negative percentage number. The interest-rate-component is an interest rate differential. The nominal interest rates of comparable long-term government bonds, e.g. with a 10-year maturity, issued by the different EMU-members, are compared. Then, the country-specific interest-rate-component is the positive differential from the considered country's bond rate to that of the country with the lowest bond rate within the whole EMU.

An example illustrates the whole procedure. Assume a member country has a debt ratio of 75% at the end of the year 1999. The EMU's inflation rate was 2.6% in 1999, the member country's growth of real GDP was 2.9% in 1999, and the member-country's government bond has an interest rate of 7.5%. Furthermore, the lowest interest rate on a 10-year government bond in the EMU is 7.0%. Then, the member country concerned has to reduce its debt ratio by 2.0 per cent (0.6% + 0.9% + 0.5%) or 1.5 percentage points in the next budget year, which is 2001. If it fails to do so, e.g. it reduces the debt ratio only by 1% or 0.75 percentage points, it automatically has to pay a fine, which is added to the ECB's reserves. This fine is a percentage rate of the country's GDP, calculated as a fifth of the missing percentage reduction of the debt ratio, i.e. in the example, the member country has to pay 0.2% of its GDP, according to the missing reduction of 1%.

It should be noted that in the case of a 2.2% inflation rate, a change of real GDP by -1%, and a zero interest rate differential, the member country is permitted to increase its debt ratio by 0.8% (0.2% - 1% = -0.8%) or 0.6 percentage points. A permission to increase the debt ratio does not mean that the country faces any sanctions if it does not do so. This permission is acceptable because if the inflation rate is low,

5. The 2% figure is chosen to determine a suitable fine for the punished country. Extreme fines bear the risk of no payment, which reduces the credibility of the pact, and too low fines are not a deterrent for countries running excessive deficits.
i.e. 2.2%, the assumption that high deficits are responsible for high inflation does not hold. So no country has to follow rules that are based on weak assumptions.

Compared to the Dublin Agreement, the same country with a debt ratio of 75% must pay deposit 0.2% of the GDP, because the debt to GDP ratio exceeds 60%. In addition, the country must deposit 10% of the deficit above 3% of GDP. This fine becomes effective, even if the inflation and the interest rates are acceptably low and the assumed relation between debt or deficit and inflation does not hold in this particular case.

4.2 An accountable monetary policy

Governors' jobs and salaries should be dependent on inflation performance.

In the second part, the often proposed accountability measures and incentive structures for the ECB (see e.g. Woll 1996; Vaubel 1993; Buchanan 1986) must be translated into action. For example, the ECB is committed to an inflation target like 2%, including a margin of +/-1%. The governors' jobs are dependent on the inflation performance. If they fail to meet the inflation target, their wages are reduced in proportion to the deviation from the inflation target. For each percentage point above an inflation of 3% or for each percentage point below 0%, the latter implying a falling price level, the governors' wages are reduced by 10%. As a variant of the scheme that has been introduced in New Zealand in 1989, if over four years the inflation rate exceeds a critical limit like 3%, or if the price level falls, the governors of the ECB are dismissed - if possible, without pension rights. Such a sanction-procedure is nothing else than the market would impose on managers of a private firm, if they persistently fail to reach the firm's target.

4.3 Implications

It is crucial to mention that both parts of the described procedure belong inseparably together. The first part implies that high inflation leads automatically to an obligation for all member countries to reduce their debt ratios. In other words, under a conceivable assumption that the ECB would follow a high-inflation strategy, it could thereby force the EMU members to significant debt reductions. But power over a main fiscal policy issue like the level of debt should not be taken away from national governments and transferred to the governors of the ECB, i.e. the governors must be prevented from the theoretically possible incentive to run high inflation in order to force national governments to lower their debt. Thus, an incentive structure for the monetary policy-makers to achieve low inflation is necessary, which is the second part of the proposal.

Some of the advantages of this new proposal are obvious. Here, a real automatic sanction-mechanism becomes possible. Furthermore, the new proposal focuses on real economic measures, rather than on an arbitrarily chosen and fixed deficit ratios. It is affordable because of the installed real GDP-component; usually, the measures to be taken should be moderate. The GDP-component makes the procedure flexible enough to react to asymmetric business cycles or to asymmetric shocks. In fact, an automatic GDP-component is still missing in all other proposals, although being crucial for the success of the whole Stability Pact. Only if an automatic GDP-component is installed, will the efforts to limit debt and deficits become independent of political bargaining about issues like an exceptional economic slow-down. In the current discussion, different definitions of exceptional economic slowdowns are considered. But the likely result will be that any definition will only assist the Council's final political decision. This has to be prevented to get a Stability Pact as a complete contract.
But, most important, the suggested proposal sets the right incentives because of the inflation-component; additionally, it takes into account market expectations because of the interest-rate-component.

A crucial problem of the discussion about a Stability Pact is that, in the economic literature, it remains controversial whether strong fiscal constraints are necessary to prevent a fiscal or a monetary bail-out within a monetary union. The classical argument that there is a strong correlation between high public debts and high inflation figures is not automatically transferable from a single country to a multi-state monetary union, where possibly only a few member states run high deficits leading to high levels of public debt (6). The first part of the procedure avoids discussing the relation between debts and inflation, because it turns the incentive structure around: If in reality high deficits and an increasing debt lead to high inflation in the EMU as a whole, then all countries are forced to reduce their debts significantly in the following years. In fact, a highly indebted country has to make even stronger efforts, because it starts from a high level of debt and is probably obliged to reduce its level of debt by an even higher percentage measure than a less indebted country. This is due to the interest-rate-component.

Interest rate differentials in government bonds reflect risk premia according to market expectations. Within a monetary union, the exchange risk premia disappear and the inflation risk premia are the same for all member countries. Pure sovereign risk will remain (7), however. In other words, by using sovereign risks, the financial markets build up expectations about a country's ability to pay in future. Thus, a significant sovereign risk is correlated with a high interest burden according to a high level of debt. It follows immediately that the new proposed mechanism provides incentives to prevent a financial crisis according to one member country's public debt. Because the highly indebted country is obliged to reduce its debt even further than other countries, the result is similar debts on a small level in the long run, leading to disappearing interest rate differentials.

Therefore, the mechanism proposed in this paper does not only take the fiscal and the monetary bail-out problem into account, it also suggests a procedure to prevent them. Such a Stability Pact provides better incentives and is reasonable from the economic point of view. A low-inflation EMU with member countries that lower their public debt to GDP ratios, whenever affordable, becomes possible.

5. Conclusions

This paper has shown that the Stability Pact will be ineffective, because sanctions are not likely to be imposed. The countries concerned have several possibilities to evade sanctions by political bargaining or by "creative" two-year budget planning.

Furthermore, the currently discussed Stability Pact focuses on a less important, possibly even counterproductive, rigid budget deficit measure. Therefore, this paper proposes a different Stability Pact that takes the more important goals in the EMU into account: These are reducing public debt in the long-run and applying a low-inflation monetary policy.


7. For example, the state governments of the US issue bonds that show a small, but still a significant interest rate differential. It is difficult to predict the level of the interest rate differentials in the EMU, but the proposed mechanism should be affordable.
Nevertheless, it seems to be too late to install such a procedure for three reasons: First, the decision made in Dublin about the Stability Pact does not allow the consideration of a wholly new proposal. Second, the negotiating politicians shrink back from installing a really automatic sanction-mechanism. This is not surprising, because a really automatic sanction-mechanism would mean that the Council decides about a procedure not to decide. Third, the EC-Commission regards the inclusion of all EU Member States rather than only the EMU members as a crucial precondition for the Stability Pact as a whole.

Considering the results of the Dublin agreement, the stage is already too advanced for implementing a new procedure, so it is advisable to concentrate on preventing political bargaining. The German negotiators could follow a strategy where the implementation of sanctions is not based on a qualified majority in the Council. Therefore, it is conceivable not to apply sanctions, if and only if the considered country makes an application for not doing so. In other words, if an excessive deficit occurs, then sanctions are applied automatically, unless a qualified majority votes in favour of the considered country with the result that sanctions are suspended. This would make it much more difficult to circumvent deterrent mechanisms.

But if all this is not achievable for political reasons, this paper recommends cancelling the whole effort to install a Stability Pact. Rather, EU-policy should focus on an appropriate macro-economic framework for the EMU, including labour mobility, price flexibility, and effective competition policy. There is still no economic consensus about restricting deficits in order to get a low-inflation monetary union. If this causation does not hold, the Stability Pact becomes useless in terms of the stated goal of low inflation. The original purpose of limiting budget deficits may be well-meaning, but the possible negative outcomes outweigh the gains of the currently discussed procedures. It cannot be the purpose to install a procedure that in particular reduces macro-economic issues to a matter of political bargaining.

Even worse, the German government has evoked a political situation where the Stability Pact has become almost a precondition for the EMU as a whole. If the German negotiators demand such a preconditions, this could be for two reasons: First, the German government wants to have an option not to participate in the EMU, which will inevitably lead to a complete failure of the system. Second, the German government wants to force its own policy-attitude upon all other EMU members, instead of arriving at a consensus among all European partners. Both lead to an attitude of rejecting further EU-integration under German dominance. If the German government recognizes after all that it holds a minority position about the Stability Pact, this should have only one consequence for the German negotiators. This is to change its position but not to provoke the failure of the monetary union.

Giving the Stability Pact an unjustified importance is not only inadequate, but also endangers Europe’s further integration.
References


How can enlargement of the European Union be reconciled with monetary construction?

Jérôme Vacher

The European Union will face a number of challenges in the near future, including the enlargement of the Union and monetary construction. Balancing this deepening and widening will be an issue even for those countries which are not integrated in the medium-term in the European Union, but where strong relationships will nonetheless prevail.

The opportunities and costs associated with enlargement and some lessons of the transition process are reviewed. It is argued that the monetary relations between the two parts of Europe should take into account these lessons.

Based on the recent experiences with currency boards, the possibility of a new monetary scheme for Europe is discussed. The scheme could involve free adhesion to a system of currency boards (or currency board-type arrangements), linked to the euro. It would lay the foundations of closer relations with Eastern Europe, as well as with other countries. It is argued that such a system can provide a framework for the convergence of participating countries. Moreover, it could be the first steps for the euro to become an international currency.

Jérôme Vacher, of French nationality, holds a degree from the Institut d'Etudes Politiques de Paris. He is a PhD student at Pantheon Sorbonne University, currently researching on recent experience with currency boards (under the supervision of Professor Christian De Boissieu). He works for the French Ministry of Economy and Finance. Based at the French Embassy in Warsaw, he is the Assistant for Poland to the Financial Counsellor in charge of Central and Eastern Europe and the Baltic Republics. His previous work experience includes: Société Générale (International Division, Central Eastern Europe and Central Asia Desk; 1995), French Trade Commission in San Francisco (1992), and Banco Nacional de Comercio Exterior in Mexico City (1991).
How can enlargement of the European Union be reconciled with monetary construction?

1. Introduction

Three great issues face Europe in the future: the convergence of the Central and Eastern European countries (CEECs) with a view to subsequent integration, arrangements for a relationship falling short of integration for certain countries, and the future of the euro as an international currency. Not only is the difference of development between the CEECs and the European Union more marked than that which separated the Community and Greece, Spain and Portugal, but also the acquis communautaire has become considerably greater since that time.

It, therefore, seems necessary to query the compatibility of European monetary construction with enlargement. The fact, that in certain respects, it is probable that the enlargement will not occur in the short term should not lead to the problem being shelved; on the contrary, preparations should be made for this development, from both theoretical and practical points of view.

Thus, arrangements for monetary relations with the CEECs must take account of the perspectives associated with accession and the lessons of transition. The advent of the euro can be reconciled with the enlargement of Europe and the arrangements for monetary relations in a fairly broad framework.

2. Arrangements for monetary relations with the CEECs must take account of the perspectives of accession and the lessons of transition

2.1 The imperatives of enlargement and the lessons of transition

Opportunities and costs associated with enlargement

The CEECs (if they are limited, for example, to six countries), would if they acceded today, bring with them proportionately three times more population than GDP [1]. It is necessary to evaluate the costs of accession having regard to the dynamics of growth and trade.

Budgetary transfers under the CAP might not provoke a Community budgetary explosion [2], nor does enlargement of the Union make reform of the CAP inevitable. A more serious problem, it seems, is posed by the structural funds.

A comparison of several studies gives a wide range of estimated costs of reconstruction. They would, it is said, in fact come to less than the public transfers of funds which Germany had to make at the time of reunification: those transfers exceeded 50% of the East German GDP from 1991 to 1993, and represented about 5% of the GDP of the

---

1. Share of European Union population compared to share of European Union GDP.

The views expressed are those of the author and do not necessarily reflect the position of the French Ministry of Economy and Finance.
Federal Republic of Germany. "Such transfers could hardly be envisaged without strict, or indeed irreversible, linkage of currencies, since without it they would give rise to unsustainable disturbances of exchange rates (3)". It would, therefore, be preferable to limit the amount of the funds allocated to a particular proportion of GDP, for example 5 to 6% (4). It would seem difficult to raise the thresholds for the allocation of structural funds, particularly because of the consequences that might follow for the current recipient countries. It is also necessary to resolve the contradiction between the extent of the funds which would be mobilized as a result of the accession of the CEECs "on equal terms" and the need to offer them an attainable horizon for accession.

As far as financing is concerned, it may be considered that leverage effects will make themselves felt in two directions: better prospects of growth should increase the profitability of loans and, therefore, their volume; while, gains in credibility should enable the risk premiums for such countries to be reduced and, therefore, the cost of financing should also fall (5).

The use of gravity models, employed for determining trade potential, indicates that the CEECs are in a position to achieve closer commercial relations with the Union. This may militate strongly in favour of appropriate exchange rate policies (6). However, it should be noted that the results of gravity models depend on two important hypotheses: the country sample used and predicted future incomes.

All in all, integration into the European Union and the granting of structural funds would lead to marked growth in the CEECs and a positive, although limited, impact on European Union GDPs and the level of employment. The results would appear to be mutually supportive, as a result of the knock-on effect of the growth in trade upon the growth of economies (7).

It is clear that the integration scenarios depend considerably on the expected medium-term growth in the CEECs. A "neo-classical" growth model, appropriately adjusted, incorporating two scenarios, with higher and lower levels according to savings capacity, gives a range of 4 to 5% potential growth (GDP per capita) in 2000 to 2010. These are low, but realistic, rates (8). It would, therefore, be necessary to allow a fairly long time to allow the countries concerned to catch up with the Union (9). The IMF (10), making shorter-term forecasts for the period 1996 to 2001, puts production growth rates at 4.9% for all the countries in transition, with not much variation from region to region (the rates extend from 4.5% for Transcaucasia and Central Asia to 5.1% for Belarus, Russia and Ukraine).

One of the challenges for the CEECs is to ensure that there is an appropriate framework for sustained growth, after successively changing the system, achieving financial stability and implementing structural reforms (11). There is no guarantee that this framework will be in place in the coming years, particularly in view of the social expenditures in those countries or the level of savings nee-
A nominal anchor appears to be preferable in a small country, which is open and highly susceptible to extensive dollarisation.

The option of currency boards

A currency board is not, strictly speaking, a central bank, it is an additional stage in the independence process for monetary policy, since it goes beyond the independence of central banks and implies independence, or indeed almost automaticity, for monetary policy.

In the main, currency boards first came into existence in British colonies to facilitate money supply. They now represent the new vogue for an old idea, advocated in particular by a number of economists as a solution to the problems of the developing and transition economies.

Currency boards have three distinguishing features:

(i) a currency board exchanges national currency for a reference currency, at a fixed exchange rate;

(ii) this is made possible by total cover of the monetary base by foreign currency reserves and securities denominated in the reference currency;
(iii) the assets of a currency board include only those reserves and do not include national securities, in particular those issued by the national government; the balance sheet of a currency board is thus considerably simpler than that of a central bank.

Accordingly, three corollaries can be inferred as consequences for the existence of currency boards:
(i) the absence of monetary financing of budgetary deficits;
(ii) the passive and automatic nature of money supply. There is no discretionary monetary policy, properly so called: the money supply depends, in part, on movements in the balance of payments and on domestic money demand;
(iii) the absence of any function on the part of the central bank as a lender of last resort.

Currency boards made a comeback to some extent on the international monetary scene with their adoption by developing countries (Argentina) and transition countries (Baltic Republics, Bulgaria starting in 1997). With several years' hindsight, it is possible to draw up a first review of how this institutional instrument has performed (17).

On the credit side of currency boards, several elements may be mentioned:
(i) the assurance of convertibility of currencies;
(ii) strict macroeconomic discipline;
(iii) an automatic adjustment mechanism to cope with balance of payments movements (the gold standard mechanism also known as "price specie mechanism");
(iv) the confidence engendered in the monetary system; it creates favourable conditions for trade, investment and growth;
(v) the capture of seignorage revenue, which otherwise would revert to the country of the reference currency;
(vi) little expertise is needed, and they are easy to set up.

On the "debit side" of currency boards, the following points may be mentioned:
(i) the problem of starting up a currency board (adequate foreign currency reserves are needed);
(ii) the risk of overvaluing the real exchange rate, linked with the introduction of a fixed exchange rate in a country with higher inflation than the reference country, or indeed in a country with hyper-inflation (18);
(iii) the difficulty of adjusting to balance-of-payments crises (foreign exchange reserves fluctuations have a direct impact on the monetary base and the liquidity of the banking system);
(iv) the problem of managing the system: it is impossible to apply even a minimally discretionary monetary policy; there can be no counter-cyclical policy in such a system;
(v) the delicate management of financial crises linked with the absence of a lender of last resort;
(vi) the political problem due to loss of sovereignty and risks of conflicts with the budgetary authorities.

The criticism traditionally levelled against currency boards, namely that the money supply may in the long term be inadequate because of the need to achieve a positive balance of payments and bring

18. What Williamson calls the "problem of transition".
about deflation, is not tenable. It is not necessary to achieve a permanent surplus: both the basic mechanisms (19), and an examination of the oldest account of the system (20), show that bank credit (the constraint operates only upon the monetary base; in transition countries, the money multiplier is still able to operate to the full extent (21)) and capital flows can compensate for this problem.

Of all the disadvantages mentioned as unfavourable aspects of currency boards, only three give any real grounds for concern in the present context and merit detailed examination:

(i) the possible overvaluation of real exchange rates, a phenomenon also found in other fixed exchange rate situations, mostly exchange rate-based-stabilizations;

(ii) the difficulties of adjustment in the face of crises involving sudden capital outflows from emerging countries (as occurred in Argentina in 1995);

(iii) the absence of a lender of last resort.

They must be judged against the background of the advantages referred to above, which seem particularly relevant in the circumstances of developing and transition countries.

A study of the policies adopted in the Baltic States may give a number of interesting indications concerning the possibility of adopting such a system to transition countries.

The lessons to be drawn from the experience of the Baltic Republics

In certain respects, the Baltic States commenced their transition with a major handicap; because they were the countries most dependent for their trade on their old Soviet partner. They thus suffered a consequential disturbance in their terms of trade: in 1992, the order of magnitude of the impact was 10 to 15% in those countries, as against 3 to 5.5% in Poland, Hungary and Czechoslovakia (22).

Rigorous budgetary and monetary policies are primary features of the Baltic States in their struggle against inflation, even though each embarked on stabilization policies on different dates. Estonia established a currency board pegged to the Deutsche Mark (June 1992), Latvia to the SDR (February 1994) (23) and Lithuania to the Dollar (April 1994). While these policies enabled severe inflation to be rapidly reduced, fairly clear differences of performance soon emerged between the three countries. In particular, the lesser success of Lithuania can be accounted for by the lesser credibility of the currency board established (24) (for example, initially, the government and the central bank were able to change the parity) and a looser commitment of the authorities to reform. The resulting uncertainty seemed to be reflected in this case by a steep fall in money demand. Moreover, the Litas appears to have been more undervalued than the other currencies. The weak financial discipline of undertakings may also have had an impact (limited application of the bankruptcy law).

There is no doubt that the adoption of a currency board, even an "impure" one, was decisive in achieving a massive reduction in inflation. The fact nevertheless remains, to take only one of the

23. Although the Bank of Latvia is not formally a currency board, it behaves as such and is often considered as a currency board.
consequences of the initial difficulties faced by that country, that the uncertainty associated with the exchange rate, the belated departure from the rouble zone and the high inflation rates appear to have slowed down the reorientation of Lithuanian foreign trade (25).

One of the most serious difficulties to be contended with by those countries was the management of serious banking crises. Those difficulties may be attributed to various causes, some of which are common to other transition countries (26): A hardening of the macroeconomic conditions linked with stabilization, and not anticipated by economic agents, sudden withdrawals of capital (above all for Latvia, which was more dependent on CIS capital); the choice of policy mix which, at the start of the transition for Lithuania and Latvia, pushed real interest rates upwards (lack of budgetary rigour, expansionist monetary policy, a lower level of confidence in the authorities in view of the fixed exchange rate resulting in higher rates); inadequate application of prudential rules; and unbridled expansion of bank loans. The three countries reacted to those crises differently with Estonia and Latvia taking the firmest positions. Estonia in particular chose, during certain episodes (in particular in 1992), not to rescue a number of its largest banks. Those crises did not have only negative consequences in the medium term, despite a high cost in real terms over the short-term. In fact, they made it possible to reinforce financial discipline, to strengthen the determination of the authorities, to eliminate high-risk establishments, and to undertake real restructuring (27). If well managed at an early stage, banking crises can consolidate the process of transition. In certain respects, the Estonian and Latvian banking sectors may have become leaner after the crises, but they became stronger.

With considerable volatility in money demand, nominal fixed pegging was clearly a better choice than control of the money supply. The second aspect to be highlighted is the fact that the credibility of the authorities' commitment gave rise, in a currency board system, to low rates of interest (in particular in Estonia's case), converging with those of the reference currency. Moreover, Latvia's experience shows that with pegged exchange rates, lacking full credibility, a strategy of nominal appreciation may facilitate some reduction in inflation, but at the expense of a much higher cost in production terms. Finally, a study of phenomena of dollarization in transition countries (28) shows that few countries have succeeded in appreciably reducing their dollarization ratios. Estonia, Lithuania, Latvia and Mongolia have done so, partly because of a rapid drop in inflation and partly because of the greater role of the market within the financial system (end of financial repression).

Briefly, the lessons to be drawn from the establishment of currency boards in the Baltic Republics can be summarized in three main points:

(i) the adoption of currency boards facilitated successful macroeconomic stabilization at both monetary and budgetary level;
(ii) the establishment of currency boards enabled a first step to be made towards nominal convergence of those economies and facilitated the integration of those three countries into the world and European economies;

(iii) the theoretical absence of a lender of last resort does not represent an entirely negative factor for the adoption of a currency board: crises can be controlled and indeed under certain conditions can constitute a positive development (29).

3. The advent of the euro can be reconciled with the enlargement of Europe and arrangements for monetary relations within a relatively broad framework

3.1 The establishment of a monetary relationship between the two parts of the continent can be seen against a new background

A plan consonant with the imperatives of transition and convergence

A possible plan would involve establishing systems very similar to currency boards, with the euro as the anchor and reserve currency. The fact that there are two dates in the timetable (1999 and 2002) for the euro’s accession to all the functions of a currency does not pose any real problem; the modified currency board would be endowed only with high liquidity securities denominated in euro in order to meet its obligations. It is possible, as shown by the example of Latvia, to have a peg on a currency, the SDR, which does not in fact have the full status of a currency.

A pre-accession partnership, highlighting the mutual advantages for the European Union and the CEECs, with voluntary and flexible participation, would be seen as a favourable step towards integration in the short term or the long term (30). Conversely, the choice by a country not to participate would not necessarily be prejudicial to its later integration, provided of course that it meets the nominal and real convergence criteria. The fact is that it would be necessary from the outset to place that plan within a relatively broad framework, so that it would not be seen merely as an “entry gate” to the European Union but also as an opportunity to enjoy close relations with the Union.

Plans proposing an “ECU zone” in Europe have already been drawn up (31). Often, the objective at the time was not only to take account of the natural relationship between the two parts of a continent but also to provide an adequate framework for the convertibility of currencies and to go some way towards facilitating payments for the CEECs. It must nevertheless be observed that the ECU did not play the role expected of it, despite its “basket” features, perhaps because it does not have all the attributes of a currency.

Whilst some of the foregoing reasons are still entirely relevant, the aim now is to enable the CEECs to complete their transition under the healthiest macroeconomic conditions, to facilitate their convergence, to take account of the arrival of a veritable European currency, and to avoid creating too great a rift in the heart of the European continent.

Three modifications appear necessary, however, to render such a system viable: account must be taken of the problem of exchange reserves, the theoretical absence of a lender of last resort, and the difficulties associated with the rate of exchange.

29. Moreover, at the beginning of transition the economies are not very monetized, and therefore banking crises might not have the same macroeconomic impact.
30. Such a plan might be adequate for countries in the strongest need for convergence and credible policies.
The establishment of currency boards presupposes the existence of reserves enabling at least 100% of the monetary base to be covered. It is clear that this is a process which may prove costly, but the problem is not insurmountable. Nevertheless, it is foreseeable that such circumstances might arise in the context of cooperation designed to grant participating countries facilities to acquire first-choice securities in euro, without of course thereby placing a disproportionate strain on Community finances.

A source of great difficulty probably lies in the theoretical absence of a lender of last resort in a currency board system. Although still limited, financial intermediation activities in the CEECs are of supreme importance to the success of transition. As they are experiencing particular difficulties, it is hardly feasible to propose a system in which there would be no lender of last resort. In this context, "the high level of unproductive loans in the banking system is a source of growing concern...There is no doubt that the potential cost of paying off unproductive loans in certain transition countries is very high and threatens to hamper the rehabilitation of public finances needed to increase national saving" (32). Experience shows that correct application of certain prudential rules makes it possible to limit the extent of crises (33), for example by avoiding an uncontrolled proliferation of bank loans.

It is not necessarily a bad thing to have the functions of the lender of last resort assumed by the government, although there may perhaps be conflicts of interest between the control of inflation and the wish to preserve the health of the banking system (34). It may be considered that such a danger is particularly great in countries which are in transition or are completing the process of transition. Nevertheless, it is equally difficult to determine whether the existing governments are in a position to assume the functions of lender of last resort whilst at the same time limiting as far as possible the risks of moral hazard. It is thus necessary to strike a fair balance between the limitation of systemic risks and a laissez-faire attitude, without restructuring as well.

Estonia has established a novel plan (35). The Eesti Pank is in fact divided into an "Issue Department", a currency board in the strict sense, and a "Banking Department" responsible for overseeing the financial system, and endowed with resources from seignorage revenue (the Eesti Pank also relied on compulsory reserves). It is quite conceivable that a similar system could be established with, if need be, European participation, for which the quid pro quo would be compliance with a set of prudential rules, in order to minimize the risks of moral hazard. It is also difficult to imagine establishing a system based entirely on insurance, in view of the potentially large size of premiums, or to conceive a system based on the solidarity of banks ("système de place") in the circumstances prevailing in certain countries in transition. Finally, account should also be taken of the possible emergence of a lender of last resort at international level (in this case the IMF), intervening

32. FMI (1996).
A currency board offers the possibility of attaining convergence towards the conditions associated with the reference currency.

Subject to certain conditions, a currency board offers the possibility of attaining convergence towards the conditions associated with the reference currency: this means nominal convergence, which includes in particular an approximation of interest and inflation rates (more slowly however), and constrained and healthy budgetary policies, capable of meeting fairly strict criteria.

Convergence is not only nominal but also real. The development of trade with the Union, an adequate macroeconomic framework and the additional growth achieved would make it possible to eliminate discrepancies in development more rapidly between the various parts of Europe, and also to finance the integration of some of them.

A structure, both durable and adaptable, for relations with the countries of Central and Eastern Europe, and possibly with other partners too.

In the long term, the system may evolve, especially if it provides sufficient credibility for those seeking integration into the Union to adhere to it. Indeed, it provides a guarantee to the countries of the Union that the partner countries have healthy macroeconomic policies.

That of course would not prevent those countries which consider it appropriate to do so from further modifying the proposed system, provided that the main objectives could be maintained. Certain currency boards have thus undergone substantial adaptations (Singapore, Ireland), and this can be done in a very progressive manner (40). It is wholly reasonable to think that the adoption of currency boards is a temporary solution adapted to the problems of transition.

For other countries of the European continent which are unlikely in the short or medium term to join the Union, such as the countries of the CIS, the zone would be one of privileged relations without integration, and it would be sufficiently flexible and attractive in so far as the Union would be their primary partner.

Other countries with close commercial links to the Union could be involved in this partnership: one example is Turkey (which is experiencing recurrent problems of macroeconomic stabilization), but there are also many African and Mediterranean Basin countries which fall into that category.

3.2 A mutually beneficial plan

An upheaval without which the euro could not achieve the status of an international currency

The accession of a currency to the status of an international currency is a complex process (41). Certain currencies, contrary to initial forecasts, have never been able to secure a status commensurate with their potential (the yen or the Deutsche Mark). In fact, there are phenomena of hysteresis (existence of fixed costs and threshold effects), self-perpetuating configurations which it ought to be possible to overturn. Thus, attention should be drawn to the importance of “captive spheres of influence” (42): “to consider competition between currencies in terms of quality is a little like seeking to explain the historical international use of Italian, French and English on the basis of their respective intrinsic qualities without first seeking to highlight the impact of dynamics upon them”. Moreover, the interdependency of monetary functions has developed and increased with financial globalization on a world scale (43). We must, therefore, emphasize the decisive role of major institutional upheavals in affecting the comparative strengths of currencies. The development of the Deutsche Mark shows the potential importance of regional dynamics (a role of not inconsiderable significance as regards the commercial invoicing of the CEECs).

Application of network theory provides an interesting key to monetary internationalization (44). It brings to the fore the fact that usage begets usage. Where such a pattern prevails, it is easy to understand that the use of the euro as a reference currency by the CEECs would facilitate the euro's accession to the status of international currency (45). For example, inter-operability endows payment systems with a central role in the process of internationalization. Use of the euro for transactions between East European countries and European Union partners could also contribute to the consolidation and security of their payment systems (46).

45. In the case of a currency board, the link with the reference currency is much more apparent to the public than with a traditional pegged exchange rate.
It is difficult to predict whether the euro will inspire the same confidence as the Deutsche Mark. Countries wishing to peg their currencies to the euro will wait and see what happens in 1999.

Moreover, although the issue is a matter of dispute, it may be considered that such a plan should be capable of easing the task of European banks in the region, just as the currency boards succeeded in facilitating the work of British banks in many countries.

Finally, it is not inconceivable that, in due course (at least, as from 2002) the euro might be in parallel circulation in the countries in transition.

A mutual advantage, but one for which there are preconditions

It is clear that such a plan must be based on voluntary accession, motivated by the possibility of substantial advantages for the signatory countries. It must therefore be remembered that the adoption of a currency board, even with adjustments, may be seen as a loss of sovereignty.

Account must also be taken of the reaction of the United States, the principal beneficiary of the international system as it stands at present.

Whilst the issue of an international currency has obvious benefits for the issuing body, it is nevertheless not self-evident that the issuer would wish to internationalize its currency, for a number of reasons:

(i) initial uncertainties surrounding euro monetary policy, particularly as regards the function of money demand (the demand for the Deutsche Mark appears recently to have been upset by reunification and disturbances in Europe), may inhibit the desire for internationalization of the euro;

(ii) a country such as Germany may prove reticent, judging for example by the initial prudence concerning internationalization of the Deutsche Mark.

---

47. Steinherr (1993).
49. De Boissieu (1996a, b).
51. The presence of international banks would also enhance the liquidity of the local banking systems.
52. This would not only support the international role of the euro: the dual legal tender system prevailing in Argentina, for example, took into account the dollarization of the country but also strengthened the credibility of the exchange rate arrangement.
(iii) gains in seignorage are difficult to estimate: certain authors (55) thus give relatively low estimates for gains of seignorage for the euro.

At the present time, there are too many uncertain factors in this area for an entirely settled position to be adopted.

European construction is in a position where it can continue to advance: its varying dimensions are not contradictory, quite the contrary. It is motivated both by economic advantages and by a strong political will. It is, therefore, advisable for European construction to be founded on a broadly based, strong framework, yet one that is sufficiently flexible to ensure that the European continent once again achieves its full importance.

---

References


Recherches Economiques de Louvain, 1-2, pp.177-193.


Economics, 40, Institute for International Economics.
EIB Papers

Volume 2, Number 1, 1997: Banking in an uncertain world
Edward Gardener & Philip Molyneux, "The too-big-to-fail doctrine revisited".
Agnès Belaisch, "High real interest rates: A long-term risk?".
PierLuigi Gilibert, "Expected loss as a credit risk measure".
Jacques Girard & Christopher Hurst, "The capital structure of private infrastructure projects and the risk of default".
Kristian Kjeldsen, "Value-at-risk and capital adequacy: The challenge for financial regulation".

Volume 1, Number 1, 1996: Special Issue on EMU
Daniel Gros, "The steeple chase towards EMU".
Ole Rummel, "On the feasibility of EMU with diverse European economic transmission mechanisms".
Bernhard Winkler, "Is Maastricht a good contract?".
Paul de Grauwe, "How to fix conversion rates at the start of EMU".
Luis Gonzalez-Pacheco & Alfred Steinherr, "A proposal to stabilise the value of the ECU".

Economic and Financial Reports

Report 97/01 Agnès Belaisch, "Why are long-term interest rates so high in Europe?"

Report 97/02 Agnès Belaisch and Kristian Kjeldsen, "Value-at-risk models for determining capital adequacy: Does allowance for correlation within broad risk categories matter?"

Report 97/03 Gregorio Impavido, "Pension funds and stock market development in Eastern Europe: Is there a link?"

Report 97/04 Mireia Keuschnigg, "Banking in Central and Eastern Europe".

Report 97/05 Mireille Fischbach and Maria Scattaglia, "Financial flows to Eastern Europe: Determinants, volatility and sustainability issues".

Report 97/06 Agnès Belaisch and Maria Scattaglia, "Forecasting long-term real exchange rates: A simple methodology applied to OECD countries and transition economies".

Economic and Financial Reports are preliminary material circulated to stimulate discussion and critical comment.

The above publications and reports are available free of charge from:
European Investment Bank
Chief Economist's Department
100, boulevard Konrad Adenauer
L-2950 LUXEMBOURG

FAX: (352) 4379-3492
E-mail: H.Halahan@eib.org