

# **EMU, FINANCIAL MARKETS AND THE WORLD ECONOMY**

# EMU, FINANCIAL MARKETS AND THE WORLD ECONOMY

edited by

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SPRINGER SCIENCE+BUSINESS MEDIA, LLC

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**Library of Congress Cataloging-in-Publication Data**

EMU, financial markets and the world economy / edited by Thomas Moser and Bernd Schips. p.cm.

Includes bibliographical references and index.

ISBN 978-1-4419-5012-3 ISBN 978-1-4757-5131-4 (eBook)

DOI 10.1007/978-1-4757-5131-4

1. Monetary unions--European Union countries. 2. Currency question--European Union countries. 3. Capital market--European Union countries. 4. European Union countries--Economic policy. 5. Economic and Monetary Union. I. Moser, Thomas, 1967- II. Schips, Bernd.

HG3942.E47 2000

332.4'94--dc21

00-064013

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Originally published by Kluwer Academic Publishers in 2001

Softcover reprint of the hardcover 1st edition 2001

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## Preface

This book is based on the conference "EMU and the Outside World", held at the Swiss Federal Institute of Technology (ETH), December 11, 1998. The conference was organized by the Swiss Institute for Business Cycle Research (KOF), which is supported jointly by the ETH and the Swiss Society for Business Cycle Research (SGK), an organization comprising representatives from private industry, the Swiss National Bank and public authorities. On the eve of the final stage of European Economic and Monetary Union (EMU), Zurich seemed to be a particularly appropriate place for such a conference. On the one hand, given its location and economic and financial links with the euro area, Switzerland is one of the "outside countries" most affected by EMU. On the other hand, it was nowhere else than in Zurich where the vision of "a United States of Europe" was expressed for the first time by Winston Churchill in his speech on September 19, 1946. For many EMU is a step in that direction, whether welcome or not.

Most of the papers appearing in this volume were presented at the conference and have been revised and updated. Three contributions, chapter 11-13, were commissioned specially for this publication. Besides the authors of the chapters, special thanks are due to Guido Boller, Robert McCauley, Umberto Schwarz, and Charles Wyplosz. At Kluwer we would like to thank Allard Winterink and Carolyn O'Neil for their support in arranging publication of this volume. Any opinions expressed in this volume are those of the respective authors and do not necessarily reflect the views of the organizations with which they are associated. Nor do they reflect the views of the Swiss National Bank or the KOF/ETH.

*T. Moser and B. Schips*

## Chapter 1

# EMU, FINANCIAL MARKETS AND THE WORLD ECONOMY

### *An Overview*

Thomas Moser and Bernd Schips

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On January 1, 1999, 11 of the 15 member countries of the European Union (EU) entered the third and final stage of European Economic and Monetary Union (EMU). As of this date Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain adopted the euro as their common currency and shifted monetary policy decisions to the newly formed European Central Bank (ECB). Notwithstanding some minor and quickly resolved problems in the TARGET payments system and some volatility in overnight interest rates, the introduction of the euro was smoother than many observers had previously expected. The introduction of the single currency is not yet complete, however, as national currencies will continue to circulate and remain sole legal tender until 2002. Moreover, the time span since the euro's promising start is still far too short in order to draw conclusions on the performance and effects of the single currency. Without doubt, however, EMU is an event of historic proportions with far-reaching implications in the years to come. For the EU, the adoption of a single currency constitutes a milestone in its post-World War II quest to strengthen economic and political ties within Europe. For the world economy, the euro's launch is the largest change to the international monetary system since the breakdown of the Bretton Woods system in the early 1970s. Since its launch, the euro is one of the world's leading currencies for investment and trade and an anchor for monetary policy for several countries in Eastern Europe and Africa. With the euro area having the second highest share of world GDP and the highest share of world trade, there is hardly a country or region that will not be affected by EMU.

The essays in this volume provide an analysis of several theoretical and policy issues associated with these implications, encompassing a number of

different approaches. They are organized under four headings. The next sections provide a short overview of the subjects and the different contributions.

## 1. EMU AND THE INTERNATIONAL MONETARY SYSTEM

The likely impact of the euro on the international monetary system has attracted substantial attention among market analysts and academics. While there has been a broad agreement that the euro will be an important international currency from the outset, opinions on the level and long-run volatility of its rate of exchange against other major currencies vary widely.

The role of a currency in the international monetary system is defined by its shares in official and private portfolios, international financial transactions, and trade flows. Although factors like the size and importance of the euro area and the institutional arrangement and mandate of the ECB suggest a major international role for the euro, it is difficult to say how broad this role will eventually be. Following the successful launch of the euro, market participants initially displayed considerable enthusiasm and many regarded the start of EMU as the beginning of the end of the dollar's hegemony. While the euro immediately became one of the main currencies in the foreign exchange markets and a popular issuance currency for international bonds, the weak performance of its exchange rate against the dollar and the yen has attracted the bulk of the public attention. It is clearly still too short a period of time, however, to make a definitive assessment of the euro's performance. In chapter 2, Michael Frenkel and Jens Søndergaard suggest an approach to quantify the longer run effects EMU may exert on the roles of the dollar, the yen, and the euro as international currencies. They estimate demand functions for central bank reserves, international bonds and international bank deposits, and apply the results to the new tripolar international monetary system. Under the assumption that the euro will achieve a reputation similar to that of the D-Mark, their estimates indicate that the euro may lead to a significant decline in the market share of the dollar as an official reserve and investment currency.

The past two decades have seen considerable fluctuations in the D-Mark-dollar rate, the most important exchange rate in Europe before the introduction of the euro. Between 1980 and 1985 the D-Mark halved against the dollar and doubled again between 1985 and 1992. Therefore, the question arises whether EMU will lead to an increase or a decrease in the long-run volatility of the euro against the dollar, compared to the one that has been observed in the exchange rates of the D-Mark and the currencies linked to it in the exchange rate mechanism (ERM) vis-à-vis the dollar. Jérôme Creel

and Henri Sterdyniak address this question in chapter 3. Presenting a three-country model with one big (United States) and two smaller countries (Germany and France), they compare three situations depending on the exchange rate regime between the two small countries (flexible, ERM, or EMU). As their analysis shows, the answer not only depends on the nature of future shocks but also on the sensitivity of intra-European trade to relative prices. Additionally, Creel and Sterdyniak argue that fiscal restrictions as induced by the Stability Pact could be an additional source of increased volatility, and that ECB independence could lead to large swings in the value of the euro after inflation shocks if monetary and fiscal policies do not share the same target.

Agnès Bénassy-Quéré and Benoît Mojon analyze the same issue but with a different approach (chapter 4). They estimate a three-country model for the United States, Germany and France and compare EMU, the ERM and a floating regime through stochastic simulations. According to their results, EMU could reduce the variability of the dollar against European currencies compared to both the ERM and to a floating regime. As Bénassy-Quéré and Mojon show, this result holds even if the removal of shocks to the intra-European risk premium is not attributed to the regime shift. Moreover, another result that they find is that EMU might produce larger instability in the US economy due to the elimination of stabilizing dollar fluctuations. This in turn might lead to more variability in US interest rates.

Launched in January 1999 at just over USD 1.17, the euro has lost more than 20 percent of its value against the dollar in the first year and a half. While most economists agree that the direction of this slide was appropriate, given the cyclical divergence between the euro area and US economies, the magnitude of the slide provoked a continuing debate. Some commentators attributed the cause of the euro's weakness to the ECB's communication strategy and its displayed benign neglect of the exchange rate. In chapter 5, André Fourçans and Thierry Warin raise the question of the role the exchange rate should play in the ECB's strategy, given that expectations are an important factor of exchange rate determination. Using a game theoretical approach that emphasizes the signals sent by central banks about their exchange rate policy and their influence on agent's expectations, Fourçans and Warin conclude that sticking only to internal price stability does not lead to a stable equilibrium in a game with two central banks. At the same time, however, they show that stabilizing exchange rates via a target zone system would only be optimal in a one shot game but not in a game with an infinite horizon.

## 2. EMU AND EUROPEAN CAPITAL MARKETS

A high degree of segmentation and a lack of cross-border competition have been a feature of European financial markets. By increasing depth and liquidity of securities markets and reducing barriers to intra-EMU cross border investment, the creation of a large single-currency financial market is expected to enhance the efficiency and effectiveness of European capital markets and induce greater competition in the banking sector. In the view of financial investors, the integration of European financial markets will also alter diversification opportunities.

Gary Santry and Simon Stevens examine both the short and long run potential impact of the euro on diversification opportunities within Europe (chapter 6). They employ standard mean variance analysis to assess the potential short run impact of the euro by simulated scenarios. Their results show that minimal differences occur with regard to estimated optimal allocations between pre and post single currency scenarios. Both for investors within and outside the euro area, however, a comparison of estimated allocations and current level shows that fund managers are substantially underweight in the single currency markets, indicating substantial diversification benefits in the short run. In addressing the potential long run impact, Santry and Stevens evaluate the relative importance of industrial and national factors in producing diversification opportunities within the euro area. From their finding that it is national factors that are of primary importance they conclude that a large degree of economic convergence within the euro area could reduce diversification opportunities in the long run.

In chapter 7, Claudia Buch and Susanne Lapp focus on possible adjustment processes in European bank portfolios due to altered diversification opportunities resulting from EMU. They present a model of portfolio choices of banks which allows to take explicit account of exchange rate risks and confront observed portfolio choices of German banks prior to EMU with an optimal portfolio. They find a pronounced home or currency bias. Since the euro eliminates the currency bias and reduces the home bias, EMU is likely to increase the integration of European financial markets. However, Buch and Lapp argue that an analysis of cross-border banking activities has to take into account factors as informational asymmetries, cost of market entry, and economies of scope. According to Buch and Lapp, all these factors are affected by the introduction of the euro, although by a smaller degree than conventional wisdom might suggest.

How does EMU affect the analytical framework non-EMU investors use to evaluate potential investment in debt and equity securities from EMU countries? Victor Canto and Robert Webb address this question in chapter 8. They argue that while purchasing power parity (PPP) was an appropriate

analytical framework for analyzing the behavior of debt and equity securities prior to the euro's introduction, this framework ceases to be useful with the disappearance of nominal exchange rates. However, they claim that the lack of harmonization of fiscal policies will lead to predictable and potentially persistent differences in the relative performance of debt and equity securities of EMU member countries. In order to develop a successful portfolio strategy, Canto and Webb suggest that rather to worry about exchange rate risk investors now have to identify country-specific effects derived from the violation of PPP or the real exchange rate. Therefore, they conclude that the real exchange rate will become an important tool for both equity and fixed income analysts.

### **3. EMU AND MACROECONOMIC POLICY**

By joining EMU, participating countries transfer the responsibility for monetary policy to the European System of Central Banks (ESCB), comprising the ECB and the national central banks. This implies that exchange rate shocks can no longer occur as a result of diverging monetary policies within the euro area. However, monetary policy in EMU will concentrate on economic conditions in the euro area as a whole, leaving no room for country-specific monetary conditions to bolster differences in cyclical positions or to facilitate real exchange rate adjustments to asymmetric shocks. A crucial question is, however, whether this shock absorption mechanism has effectively worked prior to EMU. Lilia Cavallari and Giuseppe De Arcangelis address this question in chapter 9. In particular, they investigate whether Germany, France, the UK, and Italy have recurred to an autonomous exchange-rate policy towards the United States in the ERM. Employing a structural VAR model to contrast the role of the national dollar exchange rates and an area dollar exchange rate, they find that while France has coped with asymmetric shocks by exploiting the external flexibility left by the ERM, Italy has recurred to the flexibility inside the ERM. Therefore, Cavallari and De Arcangelis conclude that for both economies EMU represents the loss of a policy instrument to face asymmetric shocks with the rest of the world.

The institutional design of EMU is based on the consensus that monetary policy must be unambiguously focused on the objective of price stability. For many participating countries and potential candidates the expectation of greater price stability is one of the potential advantages of EMU. For other countries that have experienced a decent inflation performance themselves, it is far less clear what to expect from EMU in terms of price stability. In chapter 10, Frank Strobel applies insights from recent developments in the

theory of investment under uncertainty to analyze a country's decision to join EMU. While EMU is a project with uncertain future prospects and participation is practically irreversible, the opportunity to participate does not disappear if not taken immediately. Therefore, a country does not only have to decide whether to join EMU, but also when to join. Even though future prospects will always be uncertain, time brings more information and waiting has a positive value. Using a two-country model where policymakers minimize the continuous-time equivalent of a Barro-Gordon-type loss function over inflation, Strobel examines the value of the option of monetary integration when the national preference parameters associated with an inflationary surprise follow correlated geometric Brownian motions. His findings imply that for a country to benefit from monetary integration it is not sufficient if the other country's preferences are at least as inflation averse as its own. Strobel shows that a country will be willing to give up monetary independence only if the other country is valuing inflationary surprise less than itself.

Euro area-wide monetary policy differs from the experience of member countries with regard to the fact that openness to trade of the euro area as a whole is markedly less than that of its member countries. In this respect, the euro area resembles the relatively closed economies of Japan and the United States. Although this enables the ECB to base monetary decisions primarily on euro area considerations, the euro area will not be immune to domestic shocks to the U.S. economy. Douglas Laxton and Eswar Prasad provide a quantitative exploration of possible spillover effects (chapter 11). To study the possible effects of certain risks to the U.S. economic expansion on the euro area and on other industrial countries, they make use of the IMF's MULTIMOD. Laxton and Prasad find that the potential spillover effects of U.S. shocks are quite large in general but that their magnitude is sensitive to the underlying economic conditions. In particular, their analysis illustrates how low levels of nominal interest rates can significantly magnify these spillover effects by weakening the efficacy of monetary policy responses.

Unlike monetary policy, fiscal policy in the euro area remains the responsibility of individual member states, although it is subject to surveillance. However, national fiscal policies will need to take account of the fact that monetary and exchange rate policies will be determined at the area level. The implications of "fiscal policy under EMU" are reviewed and assessed by Bas van Aarle. In chapter 12, he discusses how EMU affects fiscal stabilization policies and if and to which extent powers of taxation and government spending will be transferred to the euro area level. One conclusion that van Aarle draws from his study is that there is an increased need for coordination and harmonization of national fiscal policies under EMU. Moreover, he argues that with intensifying integration, the development of federal fiscal

policies becomes ever more important to internalize externalities and to achieve economies of scale and scope in the collection of taxes and the provision of public goods. According to van Aarle, the principle of subsidiarity that underlies the Maastricht Treaty does not seem to be in accordance with an efficient fiscal policy design under EMU.

#### **4. EMU AND COUNTRIES OUTSIDE THE EURO AREA**

Given its location and strong economic and financial links with the euro area, Switzerland is one of the non-EU countries most affected by EMU. The dependency of Switzerland on economic conditions in the euro area is subject of Yin-Wong Cheung and Frank Westermann's analysis. In chapter 13, Cheung and Westermann employ advanced time series econometric techniques to study the interactions between the Swiss and German economies controlling for the possible external influences from the U.S. economy. They find that in the short-run, Swiss industrial production is Granger-caused by German industrial production, thereby confirming the substantial influence of the euro area economy on the Swiss economy. However, this influence has to be qualified since German output shocks are found to have limited effects on Switzerland, as they tend to be short-lived. This result indicates that shocks from Switzerland itself are responsible for most of its output variability. Cheung and Westermann therefore conclude that in designing economic policy in Switzerland, it is of paramount importance to incorporate domestic factors.

Among emerging market countries to be most affected by EMU, central and eastern European countries in the process of transition and EU accession negotiations are of particular interest. New members of the EU will be expected to participate in EMU eventually. The requirements for participation, as set out in the Maastricht Treaty, call for convergence toward EU levels. A vexing question for these countries is which alternative monetary policy strategy may be more appropriate for accession to the EU and subsequent adoption of the euro. Poland and Hungary, two of the most successful transition economies, employ different approaches. Hungary has moved from a managed float to a crawling peg to the euro with a narrow band, while Poland has gradually increased exchange rate flexibility. Since April 2000, Poland allows its currency to float. Andreas Freytag suggests an alternative approach in chapter 14. By critically assessing the success of Poland's disinflation strategy he argues that a currency board would aid Poland in improving its still unsatisfactory inflation performance and pave the way to EMU. According to Freytag, a currency board would rather strengthen than

reduce the government's sovereignty by limiting the power of interest groups, facilitating further reforms, and improving credibility. To support his proposal, Freytag discusses a possible introduction and operation of a currency board in Poland.

Antonin Rusek, on the contrary, is sceptical about the currency board solution for transition economies (chapter 15). He argues that while a currency board arrangement often seems to be a good theoretical answer, it is unlikely to be the optimal solution for transition economies of Eastern Europe. According to Rusek, currency boards are particularly undesirable for medium and large transition countries, which must establish their own financial sector. As Rusek points out, financial sector restructuring and modernization is the most important task for East European economies, given the crucial role of the financial sector in generating sustained growth. In this respect, he expects the euro to have negative implications for the financial sector of east European countries in the short run, but a positive impact in the long run.

An issue that has received little attention so far is the possible impact of EMU on countries in the Mediterranean basin, in Africa and in the Middle East. Several countries in these regions, however, have close trade and financial ties with the euro area. In chapter 16, Jean-Francois Rughashyankiko addresses the vital questions if EMU will hurt industrialization of Europe's southern trading partners. To study the impact of the elimination of intra-euro volatility as a result of the euro, he presents a model of exporting choice under uncertainty. Using industrial panel data to estimate the impact empirically, his findings imply that the euro will indeed hurt the industrialization of countries in the Mediterranean and North Africa, while losses for the Middle East and for western Africa are found to be small or zero. Rughashyankiko identifies five factors that trigger this process, suggesting that any policy that provides a countervailing force against these factors would help prevent this sub-optimal de-industrialization as a result of EMU.

After three decades of political and economic instability, Turkey launched a new program of economic reforms and received the status of full candidate for EU membership at the end of 1999. Apart from political conditions, Turkey's size and gap in living standards pose a difficult challenge to its aspiration for EU membership. As regards population, Turkey would make the second largest EU member while its national income per head (at purchasing power parity) is about a third of the euro area's average. Aykut Kibritçioğlu argues, however, that a more relevant benchmark are the countries in EU accession negotiations. In chapter 17, he compares the political, social, and economic situation in Turkey with that of the other candidate countries. His findings suggest that on the economic front other candidates do not seem to be much closer to fulfilling the requirements.

PART I.

EMU AND THE INTERNATIONAL MONETARY  
SYSTEM

## Chapter 2

# **HOW DOES EMU AFFECT THE DOLLAR AND THE YEN AS INTERNATIONAL RESERVE AND INVESTMENT CURRENCIES?**

Michael Frenkel and Jens Søndergaard

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### **1. INTRODUCTION**

European Economic and Monetary Union (EMU) and the introduction of the euro offer central banks and international investors, for the first time after World War II, a real alternative to the US dollar as an international reserve and investment currency. This is the case because Euroland represents a currency area with a GDP nearly as high as that of the United States and a share in world trade exceeding the share of the United States. Since the size of the underlying economy and the volume of global trade flows are important factors determining whether or not a currency develops into an international currency, EMU can eventually lead to a role of the euro exceeding by far the combined role of the currencies the euro replaces.

The role of a currency as an international reserve and investment currency is related to the store of value function of a currency. However, four functions of an international currency can be distinguished (Table 1). For international transactions, a currency can serve as a unit of account, a means of payment, a store of value, and a peg in exchange rate arrangements. As shown in Table 1, within the various functions of an international currency two major users can be distinguished. They comprise the private sector and the public sector. Since the objective of this paper is to evaluate asset holdings in different currencies, the focus is on the international store of value function of the dollar, the yen and the euro for both the public sector (reserve currency) and the private sector (investment currency).

*Table 1. The Roles of an International Currency*

Function	Private Sector	Public Sector
Unit of account	Currency used to invoice foreign trade and denominate international financial instruments	Currency used in expressing exchange rate relationships, international comparison of national income account data
Means of payment	Currency used to settle international trade and to discharge international financial obligations	Intervention currency in the foreign exchange markets and currency used for balance of payments financing
Store of value	Currency used to denominate deposits, loans and bonds	Reserve asset held by monetary authorities
Peg in exchange rate arrangements		Currency to which the exchange rate is pegged (as a single currency or in a currency basket)

*Source:* Tavlas (1991) and own extensions.

A number of authors have studied the factors that make a currency an international currency. Heller and Knight (1978), Dooley, Lizondo, and Mathieson (1989), and Lizondo and Mathieson (1987) were among the first to study the role of individual currencies as international reserve currencies of central banks. Gros and Thygesen (1992), Johnson (1994), Leahy (1994), Alogoskoufis and Portes (1997), and Masson and Turtelboom (1997) discuss possible effects of EMU on official reserve holdings. McCauley (1997) and McCauley and White (1997) stress that the euro will also play a major role as an international investment currency given the broader, deeper, and more liquid financial market in the EMU area.

According to Bergsten (1997), the strong external economic position of the EU could indicate the euro's potential as a major international currency. Bergsten puts in doubt the future stability and value of the dollar given the fact that the United States has run current account deficits for many years and accumulated high foreign liabilities. The EU, by contrast, has a balanced international creditor position. As a result, the question arises to what extent the euro could indeed challenge or replace the role of the US dollar. There may also be implications for the role of the Japanese yen, the third most important international currency in the 1980s and 1990s.

This paper aims at quantifying the effects EMU is likely to have on the level and the currency composition of the portfolio of central banks and private investors. It extends earlier work of Frenkel and Søndergaard (1997) and focuses on the three major currencies under EMU, i.e., the dollar, the euro, and the yen. The paper estimates demand functions for international currencies and applies the results to the new structure of international currency areas. Regarding reserves, the demand of the European Central Bank (ECB) and of non-EMU central banks is examined separately. Regarding

private portfolios, we focus on international bonds and bank deposits because they represent the portfolio components which can easily be shifted between currencies. While, since the launch of the euro in early 1999, some changes in the holdings of reserves, bonds, and bank deposits can already be observed, it is too early to use the new data under EMU to identify long-term demand changes. Therefore, we have to derive longer-term functional relationships from historical data.

In quantifying the effects of EMU on the demand for international currencies, this paper uses two crucial simplifying assumptions. First, it assumes that, in the longer run, the stability of the euro – both internally and externally - will be comparable to the deutschmark and, thus, the euro may basically achieve the same reputation as the deutschmark had before 1999. This assumption does not ignore the weakness of the euro vis-à-vis the dollar following its launch, but focus on long-run developments. Second, despite the change in the international monetary system resulting from EMU, it is assumed that the induced changes in the structure of the demand functions for international currencies will not be too extensive. This means that the Lucas critique is ignored for the estimates of the asset demand changes. Otherwise, no quantification of the portfolio effects would be possible. Therefore, the results should be interpreted with caution. In order not to restrict the analysis to the initial EMU members, the effects of EMU on the demand for international currencies are examined for the initial member countries (EMU-11) and for the group of all EU countries at the end of the 1990s (EMU-15).

The remainder of the paper is structured in five parts. Section II projects the effect of EMU on the level and currency structure of foreign exchange reserves of the ECB and compares the results to the foreign exchange holdings of the central banks of the member countries before EMU. Section III estimates the effects of EMU on the level and composition of international reserves of non-EMU central banks. Section IV examines the impact of EMU on the use of international currencies in international bond issues. Section V projects the same effects on international bank deposits. Section VI contains the summary and some conclusions.

## **2. INTERNATIONAL RESERVE DEMAND OF THE EUROPEAN CENTRAL BANK**

At end-1998 foreign exchange reserves of all member countries of the IMF amounted to more than \$1.6 trillion (Table 2). There are considerable differences between the reserve levels of individual industrial countries. While Germany and Japan hold relatively high levels of international re-