



EUROPEAN CENTRAL BANK

OCCASIONAL PAPER SERIES

NO. 11 / FEBRUARY 2004

**OFFICIAL
DOLLARISATION/
EUROISATION:
MOTIVES, FEATURES
AND POLICY
IMPLICATIONS OF
CURRENT CASES**

by Adalbert Winkler,
Francesco Mazzaferro,
Carolin Nerlich and
Christian Thimann





EUROPEAN CENTRAL BANK



OCCASIONAL PAPER SERIES

NO. 11 / FEBRUARY 2004

OFFICIAL DOLLARISATION/ EUROISATION: MOTIVES, FEATURES AND POLICY IMPLICATIONS OF CURRENT CASES

by Adalbert Winkler,
Francesco Mazzaferro,
Carolin Nerlich and
Christian Thimann¹

In 2004 all ECB
publications
will feature
a motif taken
from the
€100 banknote.

This paper can be downloaded from
the ECB's website (<http://www.ecb.int>).

¹ This paper has benefited from comments and suggestions by Oscar Calvo-Gonzalez, Arnaud Mehl, Francesco Mongelli, Georges Pineau, Adam Posen, Francisco Ramón-Ballester, Antonio Sáinz de Vicuña, Michael Sturm, Pierre van der Haegen, members of the EBOPS committee and an anonymous referee. The authors wish to thank André Geis and Stefan Wredenberg for excellent research assistance. The views expressed in this paper do not necessarily reflect those of the European Central Bank.

© European Central Bank, 2004

Address

Kaiserstrasse 29
60311 Frankfurt am Main
Germany

Postal address

Postfach 16 03 19
60066 Frankfurt am Main
Germany

Telephone

+49 69 1344 0

Website

<http://www.ecb.int>

Fax

+49 69 1344 6000

Telex

411 144 ecb d

All rights reserved. Reproduction for educational and non-commercial purposes is permitted provided that the source is acknowledged.

The cut-off date for the statistics in this paper was 1 October 2003.

ISSN 1607-1484 (print)
ISSN 1725-6534 (online)



CONTENTS

1 INTRODUCTION	4	4 CASES WHERE DOLLARISATION/EUROISATION WAS ABANDONED	36
2 DOLLARISATION/EUROISATION – A REVIEW OF THE LITERATURE	7	1. Colonial regimes	36
1. Benefits and costs of dollarisation/euroisation	7	2. Liberia	36
2. Dollarisation/euroisation and the bipolar view on sustainable exchange rate regimes	10	2.1 Basic facts	36
3. Dollarisation/euroisation and optimum currency areas	12	2.2 Economic developments over the long run	36
4. Summary and outlook: stability and integration as key issues in analysing the potential costs and benefits of dollarisation/euroisation	15	2.3 Optimum currency area properties	37
3 CASES OF SUSTAINED DOLLARISATION/EUROISATION	17	3. Main lessons from cases of abandonment	39
1. Overview of cases	17	5 RECENT CASES OF DOLLARISATION/EUROISATION	40
2. The endogeneity thesis and the Rose evidence	18	1. Overview of cases	40
3. The European microstates	20	2. Kosovo and Montenegro	40
3.1 Basic facts	20	2.1 Basic facts	40
3.2 Economic developments over the long run	20	2.2 Pre-euroisation economic developments	41
3.3 Optimum currency area properties	20	2.3 Optimum currency area properties	41
4. Panama	21	3. Ecuador and El Salvador	43
4.1 Basic facts	21	3.1 Basic facts	43
4.2 Economic developments over the long run	22	3.2 Pre-dollarisation economic developments	44
4.3 Optimum currency area properties	22	3.3 Optimum currency area properties	45
5. Remaining cases of sustained dollarisation/euroisation	24	4. Common elements and main lessons from recent cases	47
5.1 Basic facts	24	6 CONCLUSIONS	50
5.2 Economic developments over the long run	24	REFERENCES	52
5.3 Optimum currency area properties	25		
6. Common elements and main lessons from sustained cases	33		

I INTRODUCTION

The adoption by one country of another country's currency has its place in the history of the world economy, but had for a long time fallen out of fashion. This has changed in recent years, mainly owing to the currency crises faced by several emerging market economies in the second half of the 1990s. As eliminating the exchange rate through the outright adoption of another currency would eradicate the potential for a currency crisis, *official and unilateral* dollarisation/euroisation has become a common policy advice.¹

In the meantime, five countries or territories have officially and unilaterally adopted other countries' currencies in recent years²: in the western Balkans, Montenegro and Kosovo introduced the euro, while in Latin America, Ecuador and El Salvador set out to abandon their currencies in favour of the US dollar. Finally, East Timor effectively dollarised after gaining independence.

Other countries have considered the adoption of a foreign currency, with Argentina the most prominent example.³ In Europe, unilateral euroisation was recommended to some countries in the western Balkans and in central and eastern Europe (Gligorov 2001; Bratkowski and Rostowski 2001; Begg; Eichengreen; Halpern; von Hagen; Wyplosz 2001).⁴ Finally, the pros and cons of a unilateral adoption of the US dollar or the euro have been discussed prominently in international financial institutions and academic circles, mostly as a result of the emerging "bipolar" or "corner solution" view on exchange rate regimes.⁵

The experience of countries and territories that have officially and unilaterally adopted a foreign currency remains under-researched. While there is a vast literature on policy implications for countries characterised by a high degree of *unofficial* dollarisation/euroisation,⁶ the costs and benefits of *official* dollarisation/euroisation have mainly been explored on theoretical grounds (see for example, the overview provided by Berg and

Borensztein 2000). Empirically, the analysis of official dollarisation has been largely confined to the case of Panama (Edwards 2001), as most countries that have adopted another country's currency are small and/or dependencies of the respective anchor countries.⁷

Cases of dollarisation/euroisation only became the focus of empirical research when Rose (2000) provided econometric evidence on the trade effects of a common currency, suggesting that two countries sharing a common currency trade far more with each other than comparable countries with different currencies. This research has had a strong impact on the dollarisation/euroisation debate, as it has been seen as evidence in favour of the endogeneity hypothesis of optimum currency areas (OCAs). According to this hypothesis, the criteria stressed by the traditional OCA theory are endogenous, rather than exogenous to the exchange rate arrangement (Frankel and Rose 1998). Thus, supporters of the endogeneity hypothesis argue that countries considering dollarisation/euroisation do not have to meet the

1 For simplicity and in line with standard practice, the term "dollarisation/euroisation" is used throughout this paper as a general term for the adoption of a foreign currency. Thus, it is not only used to characterise cases where the currency adopted is the US dollar or the euro, but also those cases where other foreign currencies are involved, e.g. the British pound or the Australian dollar.

2 For simplicity, we refer to all cases of dollarisation/euroisation as "countries". This does not imply the expression of any opinion whatsoever on the part of the authors or the European Central Bank concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers.

3 The abolishment of the peso in favour of the US dollar was openly discussed in 1999/2000 and in the wake of the currency board crisis at the end of 2001 (see Edwards 2002).

4 See also the overview in Backé and Wojcik (2003).

5 The Journal of Policy Modelling and the Journal of Money, Credit and Banking devoted special issues to this subject in 2001. The legal aspects of this exchange rate regime were discussed at the BIS/CEMLA/MOCOMILA seminar on the "Legal Implications of Currency Boards, "Dollarization" and Similar Arrangements", held in Mexico City in February 2002.

6 See, for example, the survey provided by Baliño et al. (1999). Unofficial dollarisation/euroisation is usually measured as the share of foreign currency deposits in broad money. Bergsten (1999) uses the terms policy vs. de facto dollarisation instead of official vs. unofficial dollarisation.

7 Moreover, it is rather difficult to collect relevant data for proper analysis as many of the cases of dollarisation/euroisation are not members of the IMF or World Bank, or have only recently dollarised/euroised.

Box I

THE ECB'S POSITION ON UNILATERAL EUROISATION IN ACCESSION COUNTRIES

Although this paper does not deal with hypothetical cases of euroisation, it may be worthwhile to recall the ECB's position with regard to potential unilateral euroisation in EU accession countries.

The ECB considers that the euro area represents a *multilateral* currency union formed by Member States of the European Union with common and shared responsibilities among its members. When forming Monetary Union, the EU Treaty specified certain economic and institutional criteria that have to be fulfilled by future Member States of the common currency area in order to safeguard its sustainability. Moreover, the Treaty provides that there has to be a Community assessment of the fulfilment of these criteria and mutual agreement on the appropriate exchange rates.

This is why with regard to current and future EU accession countries, the ECB does not welcome unilateral euroisation, as such an adoption of the euro outside the Treaty process would run counter to the underlying economic reasoning of European Monetary Union. In particular, it would undermine the process of convergence prior to the adoption of the euro. Unilateral euroisation would also imply circumventing the process of multilateral assessment of new members by current EU Member States and as such would be difficult to reconcile with the cooperative spirit of a community of fellow members (ECOFIN 2000; Duisenberg 2001; European Commission 2002).

OCA criteria *ex ante*, following a lengthy process of convergence or integration with the anchor country before adopting this country's currency. Rather, these criteria would endogenously be fulfilled *ex post* once a common currency has been adopted.

This paper adds to the literature in two ways: first, it provides a comprehensive review of all the main cases of dollarisation/euroisation. In particular, it includes all the European cases, which have so far largely been neglected. Second, it provides a systematic, theory-based analysis for each of the main cases. In doing so, it is guided by three questions:

- Why did countries opt for dollarisation/euroisation, and did this exchange rate regime meet their economic needs?

- Do these countries have certain economic characteristics that distinguish them from otherwise similar countries which have maintained currencies of their own?

- Have dollarised/euroised countries pursued a certain set of policies that may explain their success in sustaining this exchange rate regime?

The paper is structured as follows: Section 2 reviews the literature on dollarisation/euroisation and provides an overview of the key criteria to which that literature makes reference in its discussion of the costs and benefits of this exchange rate regime. The case study review has three parts: initially, the focus is on sustained cases of dollarisation/euroisation (Section 3), which is followed by an analysis of those cases in which dollarisation/euroisation was abandoned (Section 4). Finally, recent

cases of dollarisation/euroisation are discussed (Section 5).⁸

The main results, which are summarised in Section 6, are that policies and attributes – mainly exogenous to monetary policy – that foster integration with the anchor country have been crucial in supporting the exchange rate regime. To this end, most dollarised/euroised countries have exploited advantages that are largely prior to the choice of exchange rate regime, namely their small size, geographic proximity to the anchor country, and politically dependent status.

The findings of the paper suggest that recommending dollarisation/euroisation irrespective of countries' ex ante degree of integration with the potential anchor country seems to bear considerable risks, as dollarisation/euroisation does not seem to be a straightforward substitute for integration. Hence, despite its alleged merits as a device for achieving macroeconomic stability, countries should carefully consider the option of relying on a suitable domestic anchor for monetary policy before opting for unilateral dollarisation/euroisation (Berg, Borenszstein and Mauro 2002; Detken and Gaspar 2003; Posen 2004).

⁸ To this end, substantial efforts have been undertaken to collect data and make them comparable across countries, but question marks over their reliability remain.

2 DOLLARISATION/EUROISATION – A REVIEW OF THE LITERATURE

The prospective advantages and disadvantages of unilateral dollarisation/euroisation are mainly derived from two major theories, the “bipolar” or “corner solution view” of sustainable exchange rate regimes, and the theory of optimum currency areas, which exists in an “old” and a “new” version. As explained below, there is significant overlap between the latter two theories, as the arguments put forward by the “new” OCA theory, focusing on the issue of monetary policy credibility, are similar to the ones stressed in the bipolar view. These approaches emphasise the response to externally-induced currency crises, the credibility of monetary commitments, as well as assuming limited virtues of monetary policy discretion, in their evaluation of monetary regimes largely based on market expectations. In contrast, the “old” or “traditional” OCA theory has a rather different focus, as it emphasises the need for an adjustment mechanism in case of asymmetric shocks and an unsatisfactory level of economic integration between the dollarised/euroised country and its anchor. In other words, it emphasises more the real side of integration.

The review of the literature is complemented by empirical evidence on indicators derived from these theories, assessing whether countries would actually qualify as potential candidates for dollarisation/euroisation. The evidence indicates that under the bipolar view and the new OCA theory there might be a substantial number of countries that could benefit on stability grounds from unilaterally adopting a foreign currency. In contrast, the indicators of the old OCA theory largely suggest that countries should keep their own domestic currency, as their level of integration with the potential anchor country is too low.

I BENEFITS AND COSTS OF DOLLARISATION/EUROISATION

Dollarisation/euroisation is defined as the adoption of the US dollar or the euro by the authorities of a country outside the United

States and the euro area as legal tender and official currency, implying that the country chooses to abandon its own currency and the central bank to forego the monetary policy instrument.⁹ There is widespread agreement on the main benefits and costs of dollarisation/euroisation, which can be grouped as follows:

A) BENEFITS

Fostering macroeconomic stability: Dollarisation/euroisation is expected to foster macroeconomic stability by solving the credibility problem that arises when a domestic central bank is unable to pre-commit itself to a low rate of inflation (Barro and Gordon 1983; Goldfajn and Olivares 2000). By explicitly adopting the monetary policy of the issuing country, which enjoys a high degree of credibility, inflation and interest rates in the dollarised/euroised economy are assumed to converge towards the level of the issuing country. If this credibility channel works, this convergence should largely avoid the output costs associated with disinflation in a low credibility environment. Moreover, dollarisation/euroisation is seen as one way to accept the logic of the “inconsistent quartet” concept, by relinquishing an independent monetary policy.¹⁰ Finally, dollarisation/euroisation is supposed to enhance a country’s fiscal discipline by eliminating the possibility of printing money to finance fiscal deficits (Fischer 1982; Eichengreen 2000).

Lower risk premia: If risk premia are owing to currency and not to country risk, dollarisation/euroisation should lead to lower risk premia, because a sharp and sudden devaluation of the

⁹ Institutional specifications of dollarisation/euroisation regimes can differ in detail. For example, some countries have maintained their central bank after dollarising/euroising, while others have abolished it. Some countries, in particular those that had already dollarised/euroised back in the 19th or early 20th century, have never had a central bank. Moreover, some dollarised/euroised countries still issue domestic coins. However, this merely has a subsidiary or symbolic role.

¹⁰ The concept states that the combination of unrestricted capital flows, openness to trade, a fixed exchange rate and monetary policy autonomy is incompatible.

domestic currency against the anchor currency is ruled out by definition.¹¹ In particular, if a country is confronted with a currency mismatch (foreign currency borrowing by public or private sector entities without major foreign currency revenues), dollarisation/euroisation could eliminate this problem and therefore reduce the sovereign risk.¹² Moreover, assuming well-functioning international capital markets, dollarisation/euroisation is expected to improve a country's access to those markets as a result of lower currency risks, higher financial sector stability, lower risk of sudden introduction of capital controls (Berg and Borensztein 2000) and lower information costs (Calvo 1999).

Domestic financial sector development: Dollarisation/euroisation is expected to support the development of a country's financial sector, because a stable currency is a precondition for financial development (Hausmann et al. 1999; Berg and Borensztein 2000), leading to strong and steady economic growth.¹³

Elimination of transaction costs: The elimination of costs of exchanging the domestic currency into the currency of the anchor currency is the most visible effect of dollarisation/euroisation (Fischer 1982; De Grauwe 2000), with the cost savings being proportional to the number of transactions conducted in foreign currency.

Stronger economic and financial integration: Dollarisation/euroisation is expected to foster a country's economic integration with the economy of the issuing country (Frankel and Rose 1998; Rose and Engel 2000a; Dallas and Tavlas 2001). In particular, trade integration is likely to deepen owing to lower transaction costs and the elimination of exchange rate uncertainty, and under the assumption that trade is fairly liberalised. As a consequence of higher economic integration, dollarisation/euroisation might lead to real convergence in terms of GDP levels and convergence of business cycles with the issuing country. Finally, shocks might become more symmetric between the dollarised/

euroised country and the respective anchor country, while business cycles might become more synchronised, in turn further fostering integration.

B) COSTS

Loss of an adjustment mechanism: With dollarisation/euroisation, a country loses the use of the monetary policy instrument as a mechanism enabling it to adjust in the wake of asymmetric shocks and to react to fluctuations in the business cycle that are not in line with those in the anchor country. Accordingly, the dollarised/euroised economy has to rely on other adjustment mechanisms to avoid substantial output swings owing to asymmetric shocks or unsynchronised business cycles with the issuing country.

Loss of the lender of last resort function: With dollarisation/euroisation, the domestic authorities lose the ability to respond to a sudden run on bank deposits by acting as a lender of last resort. In particular, the authorities are unable to inject an unlimited amount of liquidity into the payment system to prevent a default on deposits (Berg and Borensztein 2000), as the amount available to purchase bank assets and to recapitalise distressed financial institutions is restricted to the country's stock of foreign reserves.

Loss of seigniorage: The most direct cost of unilateral dollarisation/euroisation is the loss of seigniorage revenues from issuing a domestic currency, as these revenues will shift from the domestic monetary authority to the monetary

11 However, if the loss of the exchange rate instrument diminishes a country's adjustment capacity to asymmetric shocks, dollarisation/euroisation could increase default risk, thus contributing to higher risk premia (Goldfajn and Olivares 2000).

12 See Calvo (1999, 2001) and Hausmann (1999). Of course, dollarisation/euroisation does not preclude sovereign defaults resulting from an unsustainable fiscal position, unsound financial systems or political turmoil.

13 The positive correlation between financial development and economic growth has been studied intensively over the last few years. For a comprehensive survey of the evidence, see World Bank (2001).

Box 2

COSTS AND BENEFITS OF DOLLARISATION/EUROISATION FOR COUNTRIES ISSUING A CURRENCY ADOPTED BY OTHER COUNTRIES

Most of the debate on dollarisation/euroisation has focused on the question of whether it is desirable for the country adopting the foreign currency, whereas less attention has been paid to the question of dollarisation/euroisation from the perspective of the issuing country. This may be explained by the fact that most costs and benefits for countries adopting the foreign currency appear to be readily transferable to the case of issuing countries (Altig 2002). For example, if dollarisation/euroisation facilitates trade and this leads to a higher degree of monetary and financial stability in the newly dollarised/euroised economy, then this might also benefit the issuing country. Conversely, if the loss of the monetary policy instrument in the dollarised/euroised economy has negative effects on stability and growth in the dollarised/euroised economy, there might be negative repercussions on the anchor country as well.

A readily measurable benefit of dollarisation/euroisation for the issuing country would be seigniorage gains that correspond to the loss of seigniorage revenues for the dollarised/euroised economy, although these gains are likely to be relatively small.^{a)} In cases of widespread unofficial dollarisation/euroisation in the form of currency substitution, the marginal gains would be even lower (Altig 2002).

The main costs for countries issuing the foreign currency to be adopted are related to the possibility that in the event of a crisis in the dollarised/euroised economy, there will be pressures on the issuing central bank to accommodate shocks, even if there are no formal obligations to do so (Altig 2002, Alesina and Barro 2001a, Summers 1999).^{b)} Finally, dollarisation/euroisation of third countries is less appealing to the issuing country when countries considering this exchange rate regime have a history of high monetary instability (Bayoumi and Mauro 2001), as this might have negative reputation effects on the issuing country and its central bank.

- a) Altig (2002) estimates the seigniorage gains (“flow” gains) for the United States to be between 0.2 and 0.8% of GDP per year if Mexico and the countries of South America were to adopt the US dollar as their domestic currency.
- b) The same pressure may arise with regard to the lender of last resort function (Schuler and Stein 2000).

authority of the issuing country.¹⁴ The loss of seigniorage includes both one-off “stock” costs arising from replacing the national currency in circulation with foreign banknotes and coins, and “flow” costs arising from the loss of the future earnings stemming from the flow of new currency printed every year.

C) FACTORS AFFECTING THE BALANCE BETWEEN BENEFITS AND COSTS

The most readily quantifiable benefits and costs of dollarisation/euroisation are the potential transaction cost savings and the loss of seigniorage revenues.

¹⁴ In principle, countries could agree to share seigniorage revenues. However, the only such arrangement that currently exists is between Lesotho, Namibia and South Africa.

The potential for transaction cost savings as a result of the adoption of a foreign currency depends on the degree of trade openness of the respective economy and the share of trade that is invoiced in the foreign currency adopted.¹⁵ It is a well-documented stylised fact that in general small countries exhibit a higher level of openness – as measured by the ratio of the sum of exports and imports to GDP – than larger economies,¹⁶ indicating that transaction cost savings may benefit them the most. In general, however, transaction cost savings per se are not perceived as a major point in favour of dollarisation/euroisation.¹⁷ Rather, the argument relies on trade-enhancing effects triggered by a reduction in transaction costs and the elimination of exchange rate uncertainty.

Costs related to the loss of seigniorage revenues are considered to be significant for many emerging market economies, particularly for those with large informal sectors, an underdeveloped tax system and/or high inflation.¹⁸ However, a developed tax system and monetary stability are regarded as general policy goals irrespective of the exchange rate regime. Thus, the proper benchmark for dollarisation/euroisation costs related to the loss of seigniorage revenues seems to be a situation of monetary stability. Most empirical studies focusing on countries that issue a stable currency put these costs at around or below 1% of GDP (Klein and Neumann 1990, De Grauwe 2000, Schobert 2002).

In summary, neither transaction cost savings nor the loss of seigniorage revenues are at the centre of the dollarisation/euroisation debate. Instead, the discussion on the benefits and costs of dollarisation/euroisation focuses on the usefulness of domestic monetary policy as an adjustment instrument in the face of asymmetric shocks.

2 DOLLARISATION/EUROISATION AND THE BIPOLAR VIEW ON SUSTAINABLE EXCHANGE RATE REGIMES

The increasing incidence and intensity of currency crises in the 1990s gave new impetus to the debate on the sustainability of exchange rate regimes. At the end of the decade consensus seemed to emerge¹⁹ whereby, under conditions of an increasingly open capital account, soft pegs – the exchange rate regime that was most widely used by emerging market economies – are seen as unsustainable. Hence, countries that have an open capital account or plan to liberalise capital flows should choose in favour of one of the two “corner solutions” – either flexible exchange rates or hard pegs, such as currency boards or dollarisation/euroisation.²⁰

15 In most cases, data on the use of currencies for international trade settlement and invoicing in goods and services are not available. However, there are estimates putting the share of world trade invoiced in US dollars at 50% (McDonough 1997), which is much higher than the United States’ share of world exports. One reason for this discrepancy is related to the fact that energy and raw materials are internationally priced in US dollars. While the existence of international pricing standards does not preclude, by itself, the use of another currency for invoicing and settlement, trade in energy and materials is almost exclusively invoiced and settled in US dollars.

16 See, for example, Easterly and Kray (2000). From a regional point of view, Asian countries are the most open economies, whereas trade, expressed as a percentage of GDP, is lowest in Latin American countries.

17 In the case of the highly integrated EU economies, the transaction cost savings of the single currency were estimated to represent a quarter to half a percent of EU GDP per annum (De Grauwe 2000; EC 1990).

18 There are different ways of calculating seigniorage revenues (Klein and Neumann 1990). Estimates for seven Latin American countries put the potential stock costs of dollarisation at around 4.5% of GDP (in the period from 1991 to 1997), whereas potential flow costs were estimated on average at 2.3% of GDP. Costs varied substantially from country to country depending on the country’s inflation rate, and its degree of financial development and unofficial dollarisation (Bogetic 1999). Moreover, in many high inflation economies, monetary instability encouraged widespread currency and asset substitution, thereby severely limiting the opportunities for exploiting seigniorage on a sustainable basis (Schobert 2002).

19 See Frankel (1999), the International Financial Institution Advisory Commission (2000) and Fischer (2001a).

20 The collapse of Argentina’s currency board has reopened this debate, as it raises questions about the practical relevance of the “two corner” approach to exchange rate policy (Edwards 2002; ECB 2003).

Table 2.1 Unofficial dollarisation/euroisation in selected countries

Degree of unofficial dollarisation/euroisation ¹⁾	Countries ²⁾
High (>70%)	Bolivia, Uruguay, Lebanon
Middle (>20%, <70%)	Cambodia, Bulgaria, Belarus, Angola, Costa Rica, Russia, Lao PDR, Philippines, Vietnam, Nicaragua, Zambia, Ecuador, Croatia, Georgia, Tajikistan, Peru, Mozambique, Egypt, Argentina, Lithuania, Mongolia, Turkey, São Tomé & Príncipe, Moldova, Paraguay, Azerbaijan, Honduras, Romania, Latvia, Ukraine, Guinea-Bissau, Congo, DR Yemen, Armenia

Source: Honohan and Shi (2002).

1) Expressed as a share of foreign currency deposits in broad money. Honohan and Shi present data for the years 1990-2000, whenever they are available. Note that Ecuador switched to unilateral, official dollarisation in 2000 (see Section 5). The breakdown into high and middle unofficially dollarised countries is taken from the World Bank's "dollarisation" webpage.

2) In most countries, the US dollar is the main currency in which foreign exchange deposits are denominated. Only in some countries neighbouring the EU, in particular in the countries of former Yugoslavia, such as Croatia, are foreign exchange deposits widely denominated in euro (ECB 2002).

The choice of the proper exchange rate regime is perceived to depend largely on the credibility of domestic monetary policy.²¹ This is because countries with a low degree of monetary policy credibility are severely limited in their capacity to use monetary policy so as to reduce output fluctuations (Summers 2000; Calvo and Reinhart 2001)²² or to act as an effective lender of last resort.²³ Thus, they cannot benefit from the gains a floating exchange rate is associated with. The experience of many emerging market economies even suggests that the use of domestic monetary policy might have had destabilising effects in terms of interest and exchange rate volatility (Del Negro et al. 2001), amplifying rather than mitigating macroeconomic fluctuations and financial instability.²⁴

Conversely, the adoption of a foreign currency offers countries with low credibility a strong "commitment device" (Del Negro et al. 2001) that they can use to stabilise monetary and economic conditions, allowing for lower interest rates, supporting non-inflationary growth and fostering financial development. Thus, dollarisation/euroisation is regarded as a

key policy tool that can put emerging markets on the road to monetary and financial stability (Calvo 2001).²⁵

The recent popularity of dollarisation/euroisation can be partly explained by the fact that many developing countries and emerging market economies can be, or have been,

- 21 A different point against floating exchange rates is that emerging market countries tend to export commodities and/or light manufactures, making them more vulnerable to high exchange rate volatility (Edwards 2002).
- 22 For example, in a country with a high degree of unofficial dollarisation/euroisation indicating a lack of monetary policy credibility, adjusting the exchange rate may be of little use, as many wages and prices are tied to a foreign currency. In this case, they will rise or fall by the same amount as the exchange rate (Frankel 1999). See, however, Cordon (2000) and Broda (2001), who argue that the real effects of exchange rate devaluations on output and employment are empirically significant, at least for larger countries.
- 23 The limits of monetary policy in acting as a lender of last resort in the case of a high degree of unofficial dollarisation/euroisation are spelled out in Jeanne and Wyplosz (2001).
- 24 This holds in particular under conditions of increasing international capital market integration.
- 25 This does not mean, however, that dollarisation/euroisation is seen as a tool for stabilising business cycle fluctuations. On the contrary, it ensures that countries cannot pursue classical stabilisation policies they would be incapable of implementing effectively owing to credibility problems.

characterised by a low degree of monetary policy credibility owing to long periods of high inflation. Moreover, many of them seem to have failed in implementing more orthodox measures regaining credibility.

A particularly relevant measure of the lack of monetary policy credibility is the degree of *unofficial* dollarisation/euroisation, defined as the share of foreign currency deposits in broad money, as it reflects the response of private agents to currency instability, macroeconomic mismanagement and financial crises. Table 2.1 provides evidence, collected by Honohan and Shi (2002), that shares of foreign currency deposits in broad money of more than 20% is not a rare phenomenon, but can be observed in many countries. Thus, the evidence seems to suggest that under the bipolar or corner solution view, there would be a substantial number of countries that meet a key prerequisite for becoming a candidate for dollarisation/euroisation.

3 DOLLARISATION/EUROISATION AND OPTIMUM CURRENCY AREAS

Dollarisation/euroisation not only constitutes an exchange rate regime, but also implies a unilateral link to an existing currency area. Thus, the dollarisation/euroisation debate echoes arguments put forward in the OCA literature. Indeed, the view that dollarisation/euroisation represents a sustainable and appropriate exchange rate regime for countries with low domestic monetary policy credibility has much in common with the “new” view on OCAs. This view, developed in the 1980s and early 1990s, is based on (1) the proposition of the long-run ineffectiveness of monetary policy, (2) the credibility issue, and (3) doubts as to the effectiveness of exchange rate adjustments (Mongelli 2002). Since low credibility implies low effectiveness of monetary policy and nominal exchange rate changes even in the short run, the cost of losing the monetary policy instrument is negligible in this view. At the same time, the benefits in

terms of credibility and stability gains are potentially high. Hence, as in the sustainable exchange rate regime literature, countries with low monetary policy credibility are considered prime candidates for joining another currency area by unilaterally switching to dollarisation/euroisation.

Whereas the new view on OCAs stresses the benefits to stability, the old view highlights the integration prerequisites of dollarisation/euroisation. This is because the cost-benefit analysis of the old OCA theory does not focus on whether a country can use monetary policy effectively to cope with asymmetric shocks and unsynchronised business cycles. Rather, it raises the question whether such a policy is needed. Thus, under the old view, the pros and cons of dollarisation/euroisation are not assessed by analysing the effectiveness of domestic monetary policy, but rather by evaluating the effectiveness of other adjustment mechanisms and the level of economic integration (see Table 2.2).

The most important adjustment mechanisms that could substitute for monetary policy are price and wage flexibility as well as mobility of factors of production, whereas the degree of diversification in production and consumption is a good indicator for assessing the adjustment capacities and needs of the respective economies. Fiscal and political integration with the anchor country could represent an alternative as well, acting as a shock absorber. Finally, a high degree of trade and financial

Table 2.2 Properties of optimum currency areas – the “old” view

OCA properties allowing countries to forego monetary policy as an adjustment instrument

- Price and wage flexibility
- Mobility of factors of production
- Diversification in production and consumption
- Fiscal and political integration
- Openness and trade integration
- Financial market integration
- Business cycle correlation

Source: Authors’ compilation, based on Mongelli (2002).

integration would lessen the need for any adjustment mechanism by lowering the probability of asymmetric shocks, leading to a highly correlated business cycle.

In the following, these issues will be briefly discussed, providing some empirical evidence on indicators that try to capture the availability of and need for these alternative adjustment mechanisms. The main finding is that most indicators suggest that only a few countries might afford to surrender domestic monetary policy.

PRICE AND WAGE RIGIDITIES

Price and wage rigidities, in industrialised as well as in developing countries, seem to be widespread. Indeed, if prices and wages were to behave in a textbook-like flexible price world, the issue of an optimum currency area, either in its old or new version, would be of little relevance (Obstfeld and Rogoff 1996).

MOBILITY OF FACTORS OF PRODUCTION

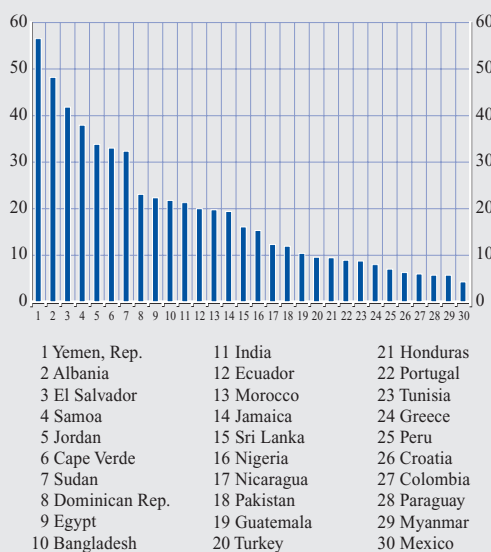
In general, inter-regional mobility of labour is rather limited (Mongelli 2002, Bayoumi and Mauro 2001, World Bank 1995). However, there are exceptions. Data on migration and remittance flows suggest that a rather large share of the population of some developing and emerging market countries is working abroad, mainly in the US, the EU²⁶ and oil-producing countries in the Gulf region. Indeed, remittances have become an important source of external funding (World Bank 2003) for some small countries in the geographical vicinity of these three economic areas. Evidence from those countries for which data are available suggests that there are several countries financing more than one-fifth of total imports by means of remittances (see Chart 2.1).

DIVERSIFICATION OF PRODUCTION AND CONSUMPTION

A high concentration of exports in specific categories of goods and services is considered to be an argument in favour of flexible exchange rates, i.e. against dollarisation/euroisation, assuming that the potential anchor country is

Chart 2.1 Net remittances

(as a percent of imports, average 1995-2000)



Sources: IMF, authors' calculations.

Note: The chart shows all countries where data are available and have a value > 4%.

not specialised in the same kind of production. Available evidence suggests that many countries are characterised by a high degree of concentration in production and exports (Cashin, Céspedes and Sahay 2002). For example, a modified version of the Herfindahl-Hirschmann index suggests that the concentration of exports is highest for resource-rich countries, such as the oil-producing states in Africa, the Middle East and the CIS, and for some small countries.²⁷

FISCAL AND POLITICAL INTEGRATION

Political integration with sizeable fiscal implications is a rare phenomenon, with the exception of political dependencies (see Section

²⁶ For a recent analysis of migration flows in Europe, see Brücker (2002).

²⁷ The index, calculated by UNCTAD, has a value of 1 when a single export product produces all export revenues. Conversely, when export revenues are evenly distributed over a large number of products, the index approaches 0. In total, 65 of the 150 countries in the UNCTAD sample feature an index value larger than 0.3, while 36 countries have a value larger than 0.5, indicating that the export structure is rather concentrated.

3.5.3). In the case of the European Union, fiscal transfers among Member States amount to less than 1% of GDP. However, many developing countries receive bilateral and multilateral aid that can be interpreted as a kind of fiscal transfer from the international community. Although development aid is not granted with the aim of acting as a shock absorber, it might represent a potential link with the anchor country that, in some circumstances, is available to offset the impact of shocks and can therefore add to the sustainability of the exchange rate regime. For some countries, these flows of official development assistance (ODA) constitute a significant share of Gross National Income (GNI). World Bank data reveal that 75 countries received ODA flows amounting on average to more than 5% of GNI in the period 1990-1999.

TRADE AND FINANCIAL INTEGRATION

Available evidence suggests that with regard to trade in goods, pre-EMU Europe achieved the highest level of regional integration among independent countries (see Table 2.3). Only in Europe does intra-regional trade in goods account for the largest share in total trade and, at the same time, feature strongly in terms of intra-regional GDP. Intra-regional trade of ASEAN countries, which are more open in general, expressed as a percentage of GDP, is slightly higher than in the euro area. However, the share of ASEAN intra-regional trade in total trade is rather low (Bayoumi and Mauro 2001). The opposite is true for NAFTA countries: while these are rather closed economies,

NAFTA intra-regional trade accounted for about half of total trade. On both counts, trade integration is much lower among Mercosur and GCC countries.²⁸

Turning to trade integration with the US and the EU, the evidence suggests that on average countries show a higher degree of trade integration with the EU than with the US. However, there is a strong regional pattern. Among the countries exhibiting a large degree of trade integration with the EU are all the acceding and accession countries, the non-EU countries of western Europe, Norway, Iceland and Switzerland, and most other countries belonging to the “Euro Time Zone” (Mazzaferro et al. 2002). Countries characterised by a high degree of trade integration with the US are mainly located in the Western Hemisphere.

Turning to financial integration, the 1990s saw a steep rise in international capital flows. Moreover, there is evidence suggesting that long-run co-movements of financial prices have become quite significant across countries.²⁹ Foreign direct investment (FDI) flows increased as well, increasing globally from about USD 200 billion in 1990 to roughly USD 1,500 billion in 2000. The bulk of financial cross-border flows have remained within industrialised countries (IMF 2001d),

²⁸ For a general overview of trade integration across regions, see IMF (2002).

²⁹ See the review of the evidence on financial integration in developed countries provided by Mongelli (2002).

Table 2.3 Intra-regional trade in goods, 1998¹⁾

Region	Measures on intra-regional trade in goods			
	Exports % of total trade	Imports % of total trade	Exports % of regional GDP	Imports % of regional GDP
Euro area	45.9	45.0	12.0	11.0
NAFTA	55.3	43.5	5.4	5.5
ASEAN-5	19.3	19.3	14.3	11.7
Mercosur	25.0	21.4	1.8	2.0
Gulf Cooperation Council (GCC)	8.0	8.1	2.9	2.4

Sources: IMF, own calculations.

1) Intra-regional trade: exports/imports of the member countries to/from each other.

reflecting the relative stability of the institutional environment in these countries (IMF 2002). Moreover, developed economies are still characterised by a home bias, as financial market integration continues to be significantly larger within countries than between countries (IMF 2002).

BUSINESS CYCLE CORRELATION

Empirical evidence on world business cycles suggests that business cycle correlation for industrial countries is significantly higher than for developing countries or between developing and industrial countries (Calderón, Chong and Stein 2002; Barro 2001). This result seems to reflect evidence on other OCA properties. Recent research indicates that a higher degree of trade and financial openness corresponds to a higher degree of business cycle correlation. Trade specialisation may also be an important factor, as business cycles of economies with similar structures are – *ceteris paribus* – more correlated than business cycles of economies with different economic structures (Imbs 2003). Thus, to a large extent business cycle correlation seems to reflect developments in trade and financial integration as well as trade diversification.

4 SUMMARY AND OUTLOOK: STABILITY AND INTEGRATION AS KEY ISSUES IN ANALYSING THE POTENTIAL COSTS AND BENEFITS OF DOLLARISATION/EUROISATION

Stability and *integration* are the two main approaches adopted in this paper to analyse the current cases of dollarisation/euroisation and their policy implications. These two concepts capture the essence of the policy issues included in this specific monetary regime: on the one hand, dollarisation/euroisation is seen, from a *stability* point of view, as a tool to eliminate a credibility problem and therefore to enhance macroeconomic and financial stability. On the other hand, from an *integration* point of view, dollarisation/euroisation is importantly linked to the degree of economic and financial (and often also institutional) integration with

the anchor country. Here, some call for ex ante integration to ensure sustainability, while others argue for ex post integration, relying on endogenous integration tendencies related to the adoption of the foreign currency.

These considerations explain why, despite broad agreement on the potential costs and benefits of dollarisation/euroisation, the literature is far from conclusive.³⁰ This relates in particular to cases where – from a *stability* perspective – countries face difficulties in making efficient use of domestic monetary policy owing to a lack of credibility, but – according to the *integration* point of view – still need domestic monetary policy as an adjustment tool to use in the wake of asymmetric shocks (see Overview 2.1). Empirically, these cases are quite relevant as there are a number of countries that seem to be suffering from a lack of monetary policy credibility owing to a history of monetary instability and a high degree of unofficial dollarisation/euroisation. But, more often than not, the very same countries seem to need domestic monetary policy since other adjustment mechanisms are not available and because they lack a sufficient degree of integration with the potential anchor country. Rather, they are characterised by a low degree of price and wage flexibility and feature a high degree of export product concentration. Factor mobility might have increased for some countries, as indicated by a rise in remittances. Most countries do not at any rate have the perspective of a political integration process with potential anchor countries, such as the US or the EU. And although some countries can count on substantial transfers from the international community in terms of official development assistance, this cannot necessarily be interpreted as an adjustment tool. Finally, most countries, in particular larger ones, are rather closed economies and lack a high degree of real and financial integration with the potential anchor countries.

³⁰ See also Del Negro et al. (2001), who in a concluding paragraph summarise several papers on the pros and cons of dollarisation.

Overview 2.1 The dollarisation/euroisation debate

	Sustainable exchange rate regime debate and "new" view on OCAs	"Old" view on OCAs
Value of having domestic monetary policy at one's disposal is low if	<ul style="list-style-type: none"> • Monetary policy lacks credibility 	<ul style="list-style-type: none"> • Other adjustment mechanisms are available • There is no need for an adjustment mechanism (symmetric shocks, synchronised business cycles)
Indicators used to assess the value of monetary policy	<ul style="list-style-type: none"> • Inflation rate • Degree of unofficial dollarisation/euroisation 	<ul style="list-style-type: none"> • Price and wage flexibility • Factor mobility • Diversification of production structure • Fiscal and political integration • Openness and trade integration • Financial integration
Support for dollarisation/euroisation	Strong, as many countries seem to be characterised by a low degree of monetary policy credibility and a high ability to converge to an anchor country's price movements	Weak, as many countries seem to need an adjustment mechanism and there is only limited ability to substitute convergence for domestic monetary policy as an adjustment tool

Source: Authors' compilation.

Thus, applying economic criteria may often lead to contradictory conclusions regarding the cost and benefits of a possible move towards dollarisation/euroisation for individual countries.³¹ The following sections examine in detail cases where individual countries opted for dollarisation/euroisation.

31 Argentina is a classic example of this (Frankel 1999). An analysis for Latin America as a whole can be found in Berg, Borensztein and Mauro (2002).

3 CASES OF SUSTAINED DOLLARISATION/ EUROISATION

On the basis of the list of territories published by the United Nations³² it is possible to identify 51 cases of sustained official dollarisation/euroisation. Most of them are small, many even involving a population of less than 100,000. Moreover, almost two-thirds of the territories are politically dependent. While the degree of dependency and the status under international law varies, the term “countries” is, as already mentioned, used to cover both dependent and independent territories for the sake of simplicity.³³ Only where the distinction between independent countries and political dependencies appears to have an economic bearing or implications related to the OCA criteria will we distinguish between countries and other territories.

Information on the economic performance of dollarisation/euroisation cases has, owing to a lack of data, been limited. However, when Rose and various co-authors (e.g. Rose 2000 and 2001, Rose and Engel 2000a, 2000b, Glick and Rose 2001) provided econometric evidence on the large trade effects of a common currency, the sample of countries with a common currency included many of these cases. The feature that has attracted the most attention is that the results of these studies suggest that dollarisation/euroisation could be a sustainable exchange rate regime even if integration with the potential anchor country is rather low *ex ante*, as it might endogenously increase *ex post*. This claim, which depends on the specific attributes of small and microstates, merits further scrutiny.

The following sections present an overview of the current cases of dollarisation/euroisation and the evidence in Rose et al. The subsequent sections review in detail their economic performance, searching for common, economically relevant features that might have contributed to the sustainability of the exchange rate regime. The focus is initially on six independent countries that have been dollarised/euroised for quite some time, namely the five European microstates and Panama. After a broad analysis of the remaining cases, a final

section summarises the results and derives some policy lessons.

I OVERVIEW OF CASES

Of the 51 identified cases of sustained official dollarisation/euroisation (see Table 3.1), 15 use the US dollar, and 13 the euro. Other currencies used are the South African rand, the Australian dollar, the Danish krone, the New Zealand dollar, the Swiss franc, the British pound and the Indian rupee.³⁴ Some countries do formally have their own currency, such as the Bahamas, Barbados, Bermuda, Belize, Bhutan, Lesotho or Namibia,³⁵ but as they have been pegged to the respective anchor currency for such a long time and/or are used interchangeably with the anchor currency, they can be safely considered as being dollarised/euroised.³⁶

The sample of dollarised/euroised countries has several special characteristics:

- Most of the countries are very small. In total, the 51 countries account for a population of roughly 18.5 million people. Only seven of them have a population larger than 1 million.
- In the sample there are 31 politically-dependent territories, usually dependencies or overseas territories of the respective anchor countries. Of the 20 independent countries in the sample, 13 only became independent between the late 1960s and the early 1990s.

³² See www.un.org/Depts/Cartographic/english/geoname.pdf.

³³ Again, this does not imply the expression of any opinion whatsoever on the part of the authors or the European Central Bank on the legal status of any country, area or territory or its authorities, or concerning the delimitation of its frontiers.

³⁴ See also Rose (2000).

³⁵ British dependencies officially use the pound with a reference to the dependencies' name, i.e. St. Helena pound, whereas French Polynesia, New Caledonia and Wallis and Futuna use the CFP franc.

³⁶ Schuler and Stein (2000) characterise these cases as “semi-officially dollarised”. On the other hand, Hawkins (2003) calls the monetary arrangement in Bermuda, the Faeroes, the Falklands Islands, Gibraltar, Guernsey, the Isle of Man, Jersey, Lesotho, Namibia and St. Helena a currency board.

Table 3.1 Sustained cases of dollarisation/euroisation

Euroised countries (dependent territories)	Population	Dollarised countries (dependent territories)	Population	Other cases of official foreign currency adoption (dependent territories)	Population
Reunion	732,570	Puerto Rico	3,937,316	Jersey (GBP)	89,361
Guadeloupe	431,170	Guam	157,557	Isle of Man (GBP)	73,489
Martinique	418,454	Virgin Islands (U.S.)	122,211	Guernsey (GBP)	64,342
French Polynesia	253,506	Northern Mariana Is.	74,612	Greenland (DKK)	56,352
New Caledonia	204,863	American Samoa	67,084	The Faroes (DKK)	45,661
French Guiana	177,562	Bermuda	63,503	Gibraltar (GBP)	27,649
Mayotte	163,366	British Virgin Is.	20,812	Cook Islands (NZD)	20,611
Wallis and Futuna	15,435	Turks and Caicos Is.	18,122	St. Helena (GBP)	7,266
St. Pierre and Miquelon	6,928			Falkland Is. (GBP)	2,895
				Christmas Is. (AUD)	2,771
				Norfolk Is. (AUD)	1,879
				Tokelau (NZD)	1,445
				Cocos Is. (AUD)	633
				Pitcairn Is. (NZD)	47
<i>Total</i>	<i>2,403,854</i>	<i>Total</i>	<i>4,443,095</i>	<i>Total</i>	<i>394,401</i>
Independent euroised countries (date of independence)	Population	Independent dollarised countries (date of independence)	Population	Independent countries that have adopted another foreign currency (date of independence, currency adopted)	Population
Andorra (1278)	67,627	Panama (1903)	2,845,647	Lesotho (1966,ZAR)	2,177,062
Monaco (1419)	31,842	Bahamas (1973)	297,852	Bhutan (1949,INR)	2,049,412
San Marino (301)	27,336	Barbados (1966)	275,330	Namibia (1990,ZAR)	1,797,677
Vatican City (1929)	890	Belize (1981)	256,062	Swaziland (1968,ZAR)	1,104,343
		Micronesia, Fed. States (1986)	134,597	Kiribati (1979,AUD)	94,149
		Marshall Islands (1986)	70,882	Liechtenstein (1806,CHF)	32,528
		Palau (1994)	19,092	Nauru (1968,AUD)	12,088
				Tuvalu (1978,AUD)	10,991
				Niue (1974,NZD)	2,124
<i>Total</i>	<i>127,695</i>	<i>Total</i>	<i>3,899,462</i>	<i>Total</i>	<i>7,280,374</i>

Sources: CIA World Fact Book, authors' compilation.

– With the exception of the island countries in the North Pacific, all independent countries use the currency of an anchor country either in their geographical vicinity or with whom they share a common border. Hence, for these countries, dollarisation/euroisation has a regional dimension. Only dependent territories use the currencies of their home countries however distant they are.

endogenous trade effects of a common currency. Using a sample of currency unions that includes 22 cases listed in Table 3.1,³⁷ Rose and co-authors estimate a standard gravity model of bilateral trade based on extensive cross-country panel data. The model includes income and distance variables, controlling for other variables potentially affecting trade flows, such as a free trade area, a common border, language, colonial past, size, landlocked countries, islands, etc. Finally, a

2 THE ENDOGENEITY THESIS AND THE ROSE EVIDENCE

The case of dollarisation/euroisation attracted attention with the publication of a series of papers by Rose and various co-authors on the

³⁷ The CFA franc zone countries, the countries of the East Caribbean Currency Area (ECCA) and the respective anchor countries are among the 56 countries that constitute the group of countries sharing a common currency in Rose's analysis.

dummy variable is included in the regressions, which is equal to unity when a country pair is a currency union, and zero otherwise.

The result suggests that two countries sharing a common currency trade far more, perhaps over three times as much, than comparable countries with different currencies.³⁸ This finding has proven to be statistically significant and robust with regard to other variables potentially affecting trade flows. The impact on the dollarisation/euroisation debate has been strong, as the level of trade integration needed to secure the benefits of stability in the medium and long term might be an endogenous variable.³⁹ Thus, the result supports the “endogeneity thesis” (Frankel and Rose 1998; Dallas and Tavlas 2001), turning the old OCA view on its head: the traditional OCA properties should thus be seen as a consequence, and not as a prerequisite, of adopting a common currency.

The Rose results triggered a debate on several aspects. Methodological issues and questions of data reliability were raised by Nitsch (2002) and by Persson (2002).⁴⁰ Other observers wondered whether the results can be generalised (Quah 2000; Obstfeld 2000; Masson 2000), given the special characteristics of many dollarised/euroised countries.⁴¹ Studies on other economic characteristics of sustained cases of dollarisation/euroisation followed. Most prominently, Edwards (2001) and Edwards and Magendzo (2001, 2002) – analysing the macroeconomic performance of Panama and 13 other cases listed in Table 3.1⁴² – found that dollarised/euroised countries have experienced significantly lower inflation, but have also grown at a significantly lower rate than countries with their own currencies.⁴³ Moreover, fiscal records of the two groups of countries are rather similar. Overall, this line of research seems to suggest that the adoption of a foreign currency does not automatically ensure a good, let alone superior, macroeconomic performance (Backé and Wojcik 2003).

The debate suggests that the policy issues raised by dollarisation/euroisation cannot be

answered by only referring to the possible trade effects of a common currency. Even if they are large, they might not be sufficient to ensure the benefits of an exchange rate regime.⁴⁴ In addition, a broader analysis might reveal that other adjustment mechanisms – not captured in the trade regressions – had come into play, supporting the sustainability of the exchange rate regime in those instances where dollarisation/euroisation was maintained.⁴⁵ It remains possible that a high degree of trade integration between members of a common currency area might emerge as a result of other policies or country-specific factors beyond those controlled for in the Rose regressions, rather than the common currency itself. For these reasons, we examine case studies of the examples of sustained dollarisation/euroisation as well as of those few countries which have exited such a regime (see Section 4). Thus, the following analysis does not pretend at drawing final conclusions, but rather aims at providing an overview of the key economic characteristics and economic policies of this set of countries.

38 Earlier research had largely failed to identify a significant and positive effect of exchange rate stability on trade.

39 For example, Glick and Rose (2001) claim that joining a currency union may cause bilateral trade to almost double. Frankel and Rose (2002), explicitly referring to dollarisation/euroisation, suggest that this exchange rate regime might be associated with both enhanced economic integration and also higher economic growth.

40 See also the response by Rose (2002).

41 Some countries in the Rose sample represent members of a regional, multilateral currency arrangement, such as the countries of the CFA franc zone and the ECCA. Klein (2002) argues that by confining the analysis to cases of unilateral dollarisation/euroisation, for example examining the United States’ bilateral trade with countries that have entered into a currency union with the United States, it is much more difficult to find significant trade effects.

42 Andorra, Kiribati, Liechtenstein, the Marshall Islands, Micronesia, Monaco, Nauru, Panama, San Marino, Tuvalu, the Cook Islands, Greenland and Puerto Rico. In addition, Liberia and Palau were included.

43 Edwards and Magendzo (2002) claim that it is the performance of the ECCA countries which led to the econometric result in Frankel and Rose (2002) that currency union members grow at a faster rate than countries with a domestic currency.

44 Glick and Rose (2001) point out that the trade effects of a common currency may take some time.

45 Lockwood (2000) raises the question whether the Rose results actually support the old view of OCAs, indicating that the formation of currency unions may be endogenous to trade flows.

3 THE EUROPEAN MICROSTATES

3.1 BASIC FACTS

In Europe, five countries, which can be subsumed under the heading “European microstates”, adopted a foreign currency as early as the 19th or early 20th century: Andorra, Liechtenstein, Monaco, San Marino and the Vatican City. On 1 January 1999, three of these (San Marino, the Vatican City and Monaco) became officially euroised.⁴⁶ Moreover, as the EU Treaty legally entitles these countries to use the euro as their official currency, based on agreements between these three countries and France and Italy respectively, these cases do not reflect unilateral euroisation in the literal sense. By contrast, there is no legal arrangement between the European Community and Andorra regarding the use of the euro in Andorra, nor was there one in the past between Andorra and France or Spain regarding the use of the French franc and the Spanish peseta. Nevertheless, in October 2000 Andorra adopted a law officially introducing the euro in Andorra. Finally, Liechtenstein unilaterally adopted the Swiss franc as legal tender in 1924, after its economy had suffered considerable damage from the erosion of Austria’s one-time currency, the crown, and the failures of several attempts to create a national currency (Klauser 2001).⁴⁷

For many years, the European microstates had no institution performing central bank functions. This changed in the late 1980s and early 1990s, when some established institutions for treasury and tax collection purposes, to supervise the banking system, to administer required reserves, and to manage financial relations and transactions with foreign counterparties.

3.2 ECONOMIC DEVELOPMENTS OVER THE LONG RUN⁴⁸

The European microstates have reached income levels as high as or higher than the countries whose currency they have adopted. This is a major achievement given that economic conditions in these countries were rather poor before World War II.⁴⁹ Their rapid post-war

development has been almost exclusively based on tourism and banking. Tourism and the hotel sector account for almost 35% of total employment in Andorra, while the financial centre accounts for approximately one-third of real net output in Liechtenstein (Klauser 2001) and for roughly 20% of global turnover in Monaco.

3.3 OPTIMUM CURRENCY AREA PROPERTIES

THE NEW OPTIMUM CURRENCY AREA THEORY

The new OCA theory suggests several indicators for evaluating the appropriateness of dollarisation/euroisation for individual countries. In the following sections on sustained, abandoned and recent cases of dollarisation/euroisation, the focus will be on whether the alleged increase in credibility has been accompanied by low(er) inflation, interest rates and bond spreads as well as by smaller fiscal and current account imbalances. Moreover, for those cases where data are available, i.e. mainly for those that have only recently dollarised/euroised, exchange rate developments and the degree of unofficial dollarisation/euroisation before adopting the foreign currency are taken into account.

For the European microstates, the available evidence suggests that inflation rates have been in line with those observed in their anchor countries. Moreover, in general, public finances have been sound. Finally, European microstates have registered overall balance of payments

46 As the Vatican City has a very small population size and owing to a lack of data, the remaining part of this section focuses purely on Andorra, Liechtenstein, Monaco and San Marino.

47 Almost sixty years later Liechtenstein formally became part of the Swiss monetary area within the “Currency Agreement” concluded in 1981. According to this Agreement, all Swiss regulations concerning monetary policy are automatically applicable in Liechtenstein.

48 With the exception of the IMF member country San Marino, the analysis of economic developments in the European microstates is severely hampered by a lack of reliable data. In many cases the information provided in the following section is taken from country websites and the CIA World Factbook. Hence, any conclusions should be interpreted with care.

49 Some sources even categorise their economic status before World War II as “impoverished”.

surpluses, resulting in a build-up of net foreign assets.

THE OLD OPTIMUM CURRENCY AREA THEORY

– *Factor mobility*

High growth in the European microstates has been accompanied by unemployment rates that have been much lower than in the respective anchor countries. Thus, the labour market of several microstates has been characterised by excess demand and labour migration, with commuting from the surrounding European countries forming an important adjustment mechanism to cope with this excess demand (Hitzelsberger, Reuter and Steinle 2001).

– *Integration via fiscal transfers*

The European microstates are independent countries and have not received any fiscal transfers from their anchor countries. Moreover, as public finances have in general remained sound, there has also been no need for any fiscal support.

– *Real and financial integration*

All microstates are highly open economies. Openness ratios, i.e. the sum of exports and imports divided by GDP, range from 100% in Andorra to 400% in San Marino. Liechtenstein's exports are in the range of 200% of GDP. With the exception of Liechtenstein, where the EU and the US are major trading partners, trade relations of the microstates have been dominated by their respective anchor countries and the EU, with whom they also form a customs union.

In addition, tourism has been a major source of integration. Andorra and Monaco are among the most tourism-intensive economies in the world, measured by the number of overnight visitors as a percentage of the total population (see Chart 3.3). Moreover, most of the tourists visiting the European microstates are from neighbouring European countries (World Tourism Organization 2002).

Banking constitutes the second pillar that the European microstates have relied on in developing their economies, benefiting from regulatory and statutory advantages.⁵⁰ Thus, the banking sectors of the European microstates have become attractive offshore financial centres (OFC),⁵¹ serving a much broader public than domestic households, enterprises and institutions. In Monaco, which represents the most developed financial centre of the four countries, 90% of banking customers are said to be non-residents, while non-residents make up 54% of deposits in San Marino (IMF 2001a).

The main activity of the banking system in the microstates is the reshuffling of funds provided by non-residents to international capital markets. Liquid assets by far dominate the balance sheet of the respective banking sectors. By contrast, loans to customers only play a negligible role, with less than 20% of total assets.

4 PANAMA

4.1 BASIC FACTS

With a population of 2.9 million, Panama is by far the largest politically independent country among the cases of sustained dollarisation. The introduction of the US dollar as the domestic currency followed the country's secession from Colombia in 1903, which was backed by the United States. After having gained independence, the country signed a treaty with the US allowing for the construction of the Panama Canal, and establishing the Panama Canal Zone under US sovereignty. In 1904, the US dollar became legal tender.⁵²

50 For a detailed account of the advantages for banks and non-resident investors given by tax privileges in San Marino, see IMF (1999).

51 Countries are considered to be OFCs if they are classified as tax havens by the OECD (2000), including the six "advance commitment jurisdictions" that were not named because they had publicly committed themselves to eliminating their harmful tax practices prior to the publication of the report, or were reported as OFCs by the Financial Stability Forum (FSF 2000).

52 The US dollar is used as a paper currency while the local balboa exists as coins. Thus, Panama does have a separate currency, but in practice, most transactions are conducted in US dollars.

The Banco Nacional de Panamá (BNP), a state-owned credit institution created in 1904, acts as the financial agent for the central government, is the official clearinghouse for the banking system, and ensures an adequate supply of US banknotes to the banking system. Occasionally, it has also supplied emergency liquidity to banks. Only recently, in 1998, the “Superintendencia de Bancos” was created, marking the start of regulatory and supervisory reform of the banking system, which had not been subject to proper public regulation for decades.

4.2 ECONOMIC DEVELOPMENTS OVER THE LONG RUN

Panama’s modern economic development is intimately linked to the Canal and the financial sector. In 1925, Panama opened its shipping registry to international companies, offering an attractive regulatory and tax system. This unprecedented act established the system of “flags of convenience”, making it attractive for ships from other countries to be registered in Panama. The Canal is also the basis of the “Colon Free Zone”, located on its Atlantic side and established in 1948. It represents the largest free trading zone in the Western Hemisphere.

Since the 1970s, the financial sector has constituted the second pillar on which Panama’s economic development has been built. The capital account is entirely open, and banks have been free to invest excess funds in Panama or abroad. Until the mid-1980s, gross foreign assets increased from basically zero to more than USD 25 billion. Today, the banking sector, including a well-developed offshore centre, accounts for approximately 14% of Panama’s output (IMF 2001c).

The importance of the Canal and banking is also reflected in the structure of Panama’s economy, which is overwhelmingly based on the service sector, accounting for more than 75% of GDP. Services include commerce, restaurants and hotels, transport and communications, financial

intermediation, the Colon Free Zone, and the Panama Canal (IMF 2001c).

Income per capita is about the average of Latin American and Caribbean countries, and the country’s growth rate has not been statistically different from that of non-dollarised countries (Edwards 2001; Mussa and Loser 1999). The economy is characterised by the co-existence of two distinct environments. On the one hand, there is a relatively affluent, urban, service-based economy in Panama City, the Canal Zone and the international banking centre. On the other hand, the country has a relatively depressed rural-based economy which, while representing over half of the population, accounts for only a small share of GDP (EC 2002).

4.3 OPTIMUM CURRENCY AREA PROPERTIES

THE NEW OPTIMUM CURRENCY AREA THEORY

Monetary stability in Panama has been remarkable compared with most other countries in the region. Indeed, inflation rates have often been lower than in the United States. Short-term interest rates have been relatively low as well, with differentials over the United States limited to around 100 basis points over Libor rates for deposits and to 160-200 basis points on commercial loans.

Fiscal policy, however, has been rather expansionary for most of the last three decades (see Table 3.2 and Edwards 2001), largely financed by extensive foreign borrowing. Moreover, with the exception of the late 1980s, when US sanctions hit the economy, Panama has consistently run current account deficits. Thus, the external debt/GDP ratio has been close to 100%.

International long-term bonds are traded with a risk premium of 400-500 basis points in terms of bond spreads over US Treasuries. This is significantly higher than bonds of other sovereign Latin American borrowers, e.g. Chile, with similar maturities (Edwards 2001).

Table 3.2 Selected macroeconomic indicators – Panama

	Average 1970-79	Average 1980-89	Average 1990-99
GDP growth	4.7	0.9	5.1
GDP per capita growth	2.4	-1.0	2.9
Inflation	6.0	3.1	1.1
Government balance (as a % of GDP)	-7.3	-5.1	-4.3
Current account balance (as a % of GDP)	n.a.	-0.1 ¹⁾	-3.3
External debt (as a % of GDP)	57.1	99.7	94.9

Sources: IMF, World Bank, authors' calculations.

1) 1980-1985: -3.9.

Moreover, spreads over US Treasuries seem to be largely driven by factors common to emerging markets (Mussa and Loser 1999; Goldfajn and Olivares 2000).

THE OLD OPTIMUM CURRENCY AREA THEORY

– Factor mobility

In comparison to other Latin American countries, like El Salvador, Nicaragua or Ecuador, migration flows from Panama to the United States have been rather limited. Estimates put the number of Panamanians living in the United States between 100,000 and 200,000. Remittances are said to reach between USD 20 and 170 million (Orozco 2003) and are not a major source of financing for the country's imports.

– Integration via fiscal transfers

There have been no direct fiscal transfers from the US budget to Panama. However, the economy has greatly benefited from US expenditures related to the military presence of

the US. Since the mid-1960s, the country has continuously relied on substantial support from the IMF (Edwards 2001; Goldfajn and Olivares 2002). Moreover, Panama went through several rounds of foreign debt restructuring. Development aid, provided by the US, multilateral development banks and other governments on bilateral terms, has been comparatively modest (see Table 3.3).

– Real and financial integration

Panama's openness ratio stands at around 75%. As per Table 3.3, roughly 35% of trade is with the anchor country, the United States. Foreign direct investment, in particular from the US, has been strong, with the exception of periods when the Panamanian government took a rather hostile attitude vis-à-vis the US. The financial sector is the key sector targeted by foreign investors. Finance, insurance and real estate account for more than 95% of all US investments in Panama (Borga and Yorgason 2002).

Table 3.3 Selected indicators of integration – Panama

	Average 1970-79	Average 1980-89	Average 1990-99
Trade (as a % of GDP)	n.a.	76.1	75.3
Trade with the US (as a % of total trade)	n.a.	38.4	35.7
FDI (as a % of GDP)	1.3	0.1	5.0
Aid (as a % of GDP)	1.8	1.0	1.0

Sources: IMF, World Bank, authors' calculations.

Panama has achieved a high degree of financial integration by attracting non-residents through favourable secrecy and control regulations.⁵³ More than a third of the roughly 80 banks operating in the country are offshore institutions, more than half of the liabilities of the banking system are foreign liabilities, and a large part of banking activity consists of re-channelling foreign funds to onshore financial markets.⁵⁴ Loans to the domestic economy, on the other hand, account for only 50% of total loans. Even this is a rather new phenomenon, reflecting the credit boom Panama has experienced over the last decade, during which time business, housing and consumer loans to the domestic economy have almost tripled, growing much faster than GDP. To substitute for the missing local lender of last resort, domestic banks have established lines of credit with foreign banks with branches in Panama, and have usually been able to draw on them during liquidity crunches (Mussa and Loser 1999).⁵⁵

5 REMAINING CASES OF SUSTAINED DOLLARISATION/EUROISATION

5.1 BASIC FACTS

The majority of the remaining 45 cases of sustained dollarisation/euroisation are small, dependent territories. French, US and Danish dependencies have always used the French franc (now the euro), the US dollar and the Danish krone respectively, whereas Bermuda, the British Virgin Islands, and the Turks and Caicos Islands followed other Caribbean countries in the early 1970s and switched from the British pound to the US dollar (Box 3).⁵⁶

Turning to independent countries, the British pound played a significant role in the monetary history of several countries in the Caribbean that are currently using the US dollar (see Box 3.1), and countries in southern Africa that are now part of the Rand zone. The US-

administered UN trusteeships in the Pacific⁵⁷ continue to use the US dollar as their domestic currency even though they gained independence in the mid-1980s/1990s.

5.2 ECONOMIC DEVELOPMENTS OVER THE LONG RUN

Dollarised/euroised countries have on average a higher per capita income than countries with their own currencies (see Table 3.4). Twelve of them, namely Bermuda, the European microstates, Jersey, Guam, Guernsey, the Faeroes, Greenland, the Isle of Man and Gibraltar, belong to the 40 richest countries worldwide, expressed by per capita income levels according to purchasing power parity. Only five dollarised/euroised countries – Bhutan, Tuvalu, Tokelau, Kiribati and Mayotte – have a per capita income per annum of less than 1,500 USD. The difference in per capita income levels between dollarised/euroised countries and countries with their own currencies is even more striking when comparing the median of the respective country groupings.

53 Hausmann and Eichengreen (1999) note that “the financial depth and stability of the Panamanian financial system is not associated with the transparency and good practices that dollarization is supposed to bring, but precisely with the country’s lack of transparency.” Only in the 1990s, when the international campaign against money laundering activities intensified, did the authorities tighten regulations and strengthen the role of the Banking Supervisory Authority (IMF 2001c).

54 The analysis of the Panamanian banking sector mainly relies on information provided in IMF (2001c).

55 Of the 54 banks with a general license, 26 are banks with headquarters in Panama, accounting for 55% of the banking sector’s assets. 18 are branches of foreign banks, and 10 operate as (separately capitalised) subsidiaries of foreign banks. European and North American banks hold around 30% of total banking sector assets.

56 The Pitcairn islands use the New Zealand dollar. Former UK dependencies that became dependencies of Australia and New Zealand implicitly experienced a change in the currency regime as well, since they now use the Australian/New Zealand dollar rather than the British pound.

57 The Federal States of Micronesia, the Marshall Islands and Palau.

Box 3

FROM STERLING TO US DOLLAR – A SHORT REVIEW OF THE EVOLUTION OF CURRENCY ARRANGEMENTS IN THE CARIBBEAN¹

Up to the end of the 1950s/early 1960s English-speaking countries in the Caribbean operated sterling-based currency boards as a legacy of their colonial past. Trade and financial links were already stronger with the US than with the UK, but under the Bretton Woods system of fixed parities, this mismatch of monetary and real/financial links was not perceived as an economic challenge.

This changed after the 1967 devaluation of sterling against the US dollar, causing an inflationary shock in the region. Thus, when the Bretton Woods regime collapsed, most countries in the region switched to a US dollar peg, including the Bahamas, Barbados and Belize.² Since then they have managed their currencies in a quasi-currency board manner, maintaining levels of foreign reserves so that they were always able to intervene successfully in support of the peg. Only Guyana, Jamaica and Trinidad and Tobago abandoned the quasi-currency board strategy in the 1970s and 1980s.

¹ This box relies on information provided by Worrell (2003) and Beek et al. (2000).

² The member countries of the Eastern Caribbean Currency Union, namely Anguilla, Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts, St. Lucia and St. Vincent, decided to establish a common currency, the East Caribbean dollar, based on a currency board arrangement with a US dollar peg.

Restricting the comparison to the sample of non-industrialised countries reveals that, both on average and in median terms, dollarised/euroised countries are significantly richer than developing countries and emerging market economies with their own currencies. Moreover, politically-dependent dollarised/euroised jurisdictions have on average reached higher income levels than independent dollarised/euroised economies (see Table 3.4).⁵⁸

As in the European microstates, the high level of income of several dollarised/euroised countries is a post-World War II phenomenon, in particular in the Caribbean. Again, tourism and banking constitute core sectors contributing to the rapid development of the respective economies.

5.3 OPTIMUM CURRENCY AREA PROPERTIES**THE NEW OPTIMUM CURRENCY AREA THEORY**

Available evidence suggests that, in general, the inflation rates of dollarised/euroised countries have generally moved in line with those of the respective anchor countries. In particular, inflation rates in the Bahamas and Barbados are highly and positively correlated with the inflation rate in the United States. In Belize, correlation with US inflation increased substantially after switching to the US dollar in 1981.

Somewhat lower are the correlation coefficients between the inflation rates of the three countries in the Rand zone and the South African inflation rate. Finally, the example of Kiribati relative to Australia suggests that inflation rate movements of the dollarised country do not

⁵⁸ Among the dependent dollarised/euroised jurisdictions only Reunion, Saint Helena, Wallis and Futuna, Tokelau and Mayotte have a per capita income of less than USD 5,000 (in PPP terms).

Table 3.4 Per capita income in selected country groups¹⁾

(in USD, in PPP terms)

Groups (political status, sample size)	Average	Median
World (all countries and jurisdictions, 228)	8,800	4,780
Countries with their own currencies (all countries and jurisdictions, 182)	8,200	4,200
Dollarised/euroised countries (all countries and jurisdictions, 46) ²⁾	11,120	8,850
<i>Dollarised/euroised countries (independent countries, 19)</i>	9,400	4,500
<i>Dollarised/euroised countries (dependencies, 27)</i>	12,340	11,150
Non-industrialised countries (205)	6,840	4,090

Sources: CIA World Factbook, authors' calculations.

1) Most recent data available.

2) Excluding Pitcairn, the Cocos, Christmas and Norfolk Islands, the Vatican City.

have to be closely aligned with those in the anchor country. Kiribati has a narrow-based economy, with 80% of Kiribati households making a living by fishing. Hence, the economy is highly vulnerable to external, asymmetric shocks that affect price developments.⁵⁹ Thus, inflation developments in Kiribati are only mildly correlated with those in Australia.

As has already been mentioned, fiscal policies in dollarised/euroised countries seem to show similar results as those of countries with their own currencies (Edwards and Magendo 2001). However, as will be shown below in more detail, many dollarised/euroised countries and jurisdictions have received substantial fiscal transfers from their respective anchor countries.

Many countries with a long history of dollarisation/euroisation can be characterised as countries with large trade deficits.⁶⁰ Since neither GDP nor current account data are available for many cases of dollarisation/euroisation, the trade balance/total exports ratio is used as an indicator for the purpose of cross-country comparison. Using this indicator, available evidence suggests that 25 of the 50 countries with the highest trade deficit are dollarised/euroised countries (see Chart 3.1).⁶¹ 12 cases of dollarisation/euroisation can be found among the other 100 countries and territories that also have trade deficits. Only three (Liechtenstein, Nauru and the Faeroes) of the 40 cases of dollarisation/euroisation where

data are available show higher exports than imports.

THE OLD OPTIMUM CURRENCY AREA THEORY

– Factor mobility

Available evidence indicates that labour has largely moved from euroised/dollarised countries to the respective anchor countries. For example, the Caribbean island states have experienced a flow of labour from the islands to North America and the UK (Lester 2002).⁶² In the Pacific, Niue is an example of sizeable labour flows to the anchor country, New Zealand. The economies of Kiribati, the Cook Islands, Tokelau and Tuvalu benefit from substantial remittances, indicating that labour has been mobile in the past. In the Rand Zone, Lesotho and Swaziland are recipients of sizeable remittances from miners employed in South Africa.

– Diversity of products

Several dollarised/euroised countries have economies based on a few products.⁶³ Bhutan, the Federated States of Micronesia and Wallis and Futuna largely depend on agriculture,

⁵⁹ Similar evidence can be found for the Marshall Islands (IMF 1998).

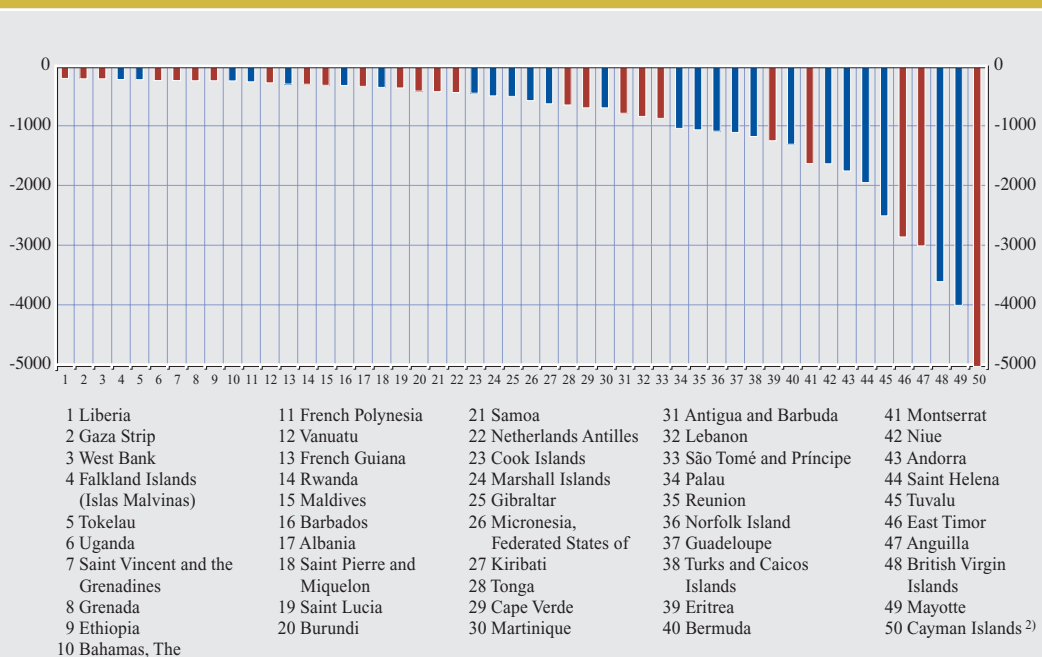
⁶⁰ See also the evidence provided by Rose and Engel (2000).

⁶¹ The CIA World Factbook does not provide data for Christmas Island, the Cocos Islands, Guernsey, Jersey, the Isle of Man, Monaco, the Northern Mariana Islands, the Pitcairn Islands, San Marino and the Virgin Islands.

⁶² Labour mobility within the islands seems to be rather low.

⁶³ See also the evidence provided by Rose and Engel (2000).

Chart 3.1 High merchandise trade deficit countries¹⁾



Sources: CIA factbook; authors' calculations.

Note: Dark blue bars mark dollarised/euroised countries.

1) In percent of the respective country's exports; latest available f.o.b. or c.i.f. data. For the following countries listed in Table 3.1 there were no data available: Christmas Is., Cook Is., Virgin Islands, Guernsey, Jersey, Isle of Man, Monaco, San Marino, Northern Mariana Is., Pitcairns Is., Vatican City.

2) Cayman Islands: -38016.7%.

forestry and fishing, which account for up to 90% of the labour force. The economies of the Faeroes, Greenland and St. Pierre and Miquelon critically depend on fishing. Some dollarised/euroised economies depend almost exclusively on the production of a few natural resources, such as Christmas Island and Nauru (phosphate mining), Namibia (extraction and processing of minerals) and New Caledonia (nickel).

– Integration via fiscal transfers

A striking feature of many dollarised/euroised countries and jurisdictions is that they have received substantial financial transfers from their respective anchor countries (see Table 3.5).⁶⁴ The degree of dependency has been extraordinary. The islands in the North Pacific and the Danish and French dependencies have received subsidies from their respective anchor countries to such an extent that their relatively high per capita GDP largely depends on this support.

Financial dependence is most pronounced for dependencies, as 17 out of 31 jurisdictions share this characteristic. Moreover, one-third of the independent dollarised/euroised countries rely to a large extent on transfers from their anchor countries. Thus, financial dependence is a key feature of sustained cases of dollarisation/euroisation (see Box 4).

⁶⁴ A country is defined as financially dependent when it either receives ODA flows of more than 5% of GNI, of which at least 20% originates from one donor country. Data are taken from the OECD (2002) database. A country is also defined as financially dependent when it is referred to in the CIA World Factbook as receiving "substantial transfers" or being "highly dependent on subsidies". This cross-referencing is necessary because the OECD coverage is limited, as well as to capture more subtle cases through which countries may receive official transfers.

Table 3.5 Official development assistance/subsidies and sustained cases of dollarisation/euroisation

Country	Political status	Qualitative evidence ¹⁾	ODA as % of GDP ²⁾	Largest donor	Anchor country
American Samoa	dependent	"[I]mportant financial support from the US [...] Transfers from the US Government add substantially to American Samoa's economic well-being."	n/a	US	US
Cook Islands	dependent	"\$13.1 million (1995); New Zealand continues to furnish the greater part"	n/a	New Zealand	New Zealand
Faeroe Islands	dependent	"\$135 million annual subsidy from Denmark (1999)"	n/a	Denmark	Denmark
French Guiana	dependent	"The economy is tied closely to that of France through subsidies and imports."	n/a	France	France
French Polynesia	dependent	"The territory substantially benefits from development agreements with France aimed principally at creating new businesses and strengthening social services."	9%	France	France
Greenland	dependent	The economy remains critically dependent on exports of fish and substantial support from the Danish Government, which supplies about half of government revenues [...] \$380 million subsidy from Denmark (1999)	n/a	Denmark	Denmark
Guadeloupe	dependent	"[The economy] depends on France for large subsidies and imports"	n/a	France	France
Guam	dependent	"Guam receives large transfer payments from the US Federal Treasury (\$143 million in 1997)"	n/a	US	US
Martinique	dependent	"[S]ubstantial annual aid from France	n/a	France	France
Mayotte	dependent	"\$107.7 million (1995); note - extensive French financial assistance"	n/a	France	France
New Caledonia	dependent	"In addition to nickel, the substantial financial support from France and tourism are keys to the health of the economy."	10%	France	France
N. Mariana Islands	dependent	"The economy benefits substantially from financial assistance from the US."	n/a	US	US
Reunion	dependent	"The economic well-being of Reunion depends heavily on continued financial assistance from France."	n/a	France	France
Saint Helena	dependent	"The economy depends largely on financial assistance from the UK, which amounted to about \$5 million in 1997 or almost one-half of annual budgetary revenues."	n/a	UK	UK
Saint Pierre & Miquelon	dependent	"The islands are heavily subsidized by France to the great betterment of living standards [...] [A]pproximately \$65 million in annual grants from France."	n/a	France	France
Tokelau	dependent	"The people must rely on aid from New Zealand to maintain public services, annual aid being substantially greater than GDP."	n/a	New Zealand	New Zealand
Wallis and Futuna	dependent	"Revenues come from French Government subsidies, licensing of fishing rights to Japan and South Korea, import taxes, and remittances from expatriate workers in New Caledonia."	n/a	France	France
Bhutan	independent	"The government of India finances nearly three-fifths of Bhutan's budget expenditures."	12%	India	India
Kiribati	independent	"Foreign financial aid, from UK, Japan, Australia, New Zealand, and China, is a critical supplement to GDP, equal to 25%-50% of GDP in recent years."	22%	Australia	Australia
Marshall Islands	independent	"US Government assistance is the mainstay of this tiny island economy ... Under the terms of the Compact of Free Association, the US provides roughly \$39 million in annual aid."	57%	US	US
Micronesia, Fed. St	independent	"[U]nder terms of the Compact of Free Association, the US will provide \$1.3 billion in grant aid during the period 1986-2001	40%	US	US
Niue	independent	"Government expenditures regularly exceed revenues, and the shortfall is made up by critically needed grants from New Zealand	n/a	New Zealand	New Zealand
Palau	independent	"The government is the major employer of the work force, relying heavily on financial assistance from the US."	21%	US	US
Tuvalu	independent	"Substantial income is received annually from an international trust fund established in 1987 by Australia, NZ, and the UK and supported also by Japan and South Korea."	n/a	n/a	Australia

1) CIA World Factbook.

2) OECD (2000 or latest available data).

– *Real and financial integration*

Anchor countries are the major trading partners of dollarised/euroised countries (see Chart 3.2). This is in line with empirical evidence provided by Rose (2000), suggesting that dollarised/euroised countries trade more with their respective anchor countries than a standard gravity model of trade would predict (see Section 3.2).

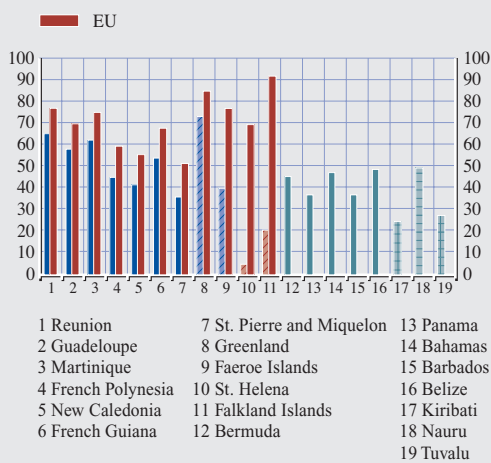
However, there is also evidence indicating that the degree of openness and trade integration with the respective anchor country is rather similar to that of other countries in the geographical vicinity. For example, comparing the share of trade with the US in total trade for the three dollarised independent countries in the Caribbean and Panama with other countries in the Western Hemisphere suggests that the level of trade integration with the US is not exceptionally high in the case of the dollarised countries.

Some dollarised countries in the Caribbean have been extremely successful in attracting foreign investment. Again, however, similar levels of integration can be found for other countries in the region. For example, expressed as a ratio of GDP, Bermuda has one of the highest FDI inward stock worldwide, but this is about the same as in the neighbouring Cayman Islands. This is because investment in the financial sector dominates, suggesting that FDI in these countries is mainly driven by their common status as OFCs. In contrast, dollarised/euroised countries in the Pacific, i.e. Kiribati, Tuvalu and New Caledonia, have been less able than other Pacific islands, e.g. Fiji, to attract foreign direct investment.

Finally, tourism is an important real integration factor between dollarised/euroised countries and their respective anchor countries. This tendency is most pronounced for cases located in the close geographical proximity of the respective anchor countries, e.g. the Caribbean islands and the European microstates. Available data suggest that a greater proportion of tourists to dollarised/euroised countries come from the

Chart 3.2 Trade of selected cases of dollarisation/euroisation with their respective anchor countries

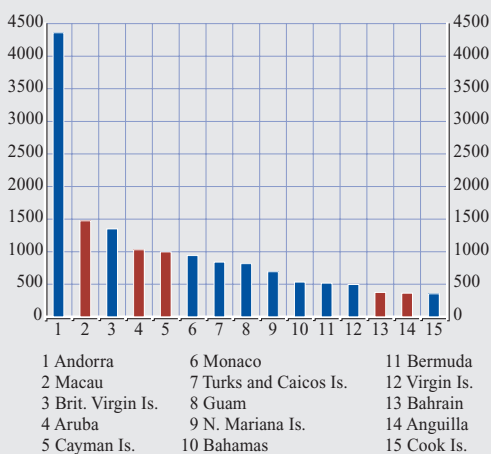
(as a percentage of total trade, average 1980-1996)



Sources: IMF, authors' calculations.
Note: The anchor countries are France (Reunion, Guadeloupe, Martinique, French Polynesia, New Caledonia, French Guiana, St. Pierre and Miquelon), Denmark (Greenland, Faeroe Islands), United Kingdom (St. Helena, Falkland Islands), US (Bermuda, Panama, Bahamas, Barbados, Belize), Australia (Kiribati, Nauru, Tuvalu). Moreover, the share of the EU has been added for all cases involving anchor countries that are EU member states.

Chart 3.3 Tourist-oriented countries: number of overnight visitors per year

(as % of total population)



Note: Dark blue bars mark dollarised/euroised countries.
Sources: World Tourism Organization, authors' calculations.

anchor country (World Tourism Organization 2002).

Moreover, as in the case of fiscal transfers, the exposure to tourism seems to be exceptionally high in comparison with other countries. Of the top 15 countries in terms of tourism activity, 10 are dollarised/euroised (see Chart 3.3). About one-third of the 42 “highly tourist-oriented”⁶⁵ countries are dollarised/euroised, whereas only five of the 82 countries with a tourism inflow of less than 10% of the domestic population represent cases of dollarisation/euroisation (Bhutan, Kiribati, the Marshall Islands, Lesotho and Tuvalu).⁶⁶ Thus, real integration via tourism seems to be a second characteristic distinguishing dollarised/euroised countries and jurisdictions from other countries (see Box 4).

Offshore finance plays an important role in many cases of sustained dollarisation/euroisation. Indeed, 20 out of 51 dollarised/euroised countries have established OFCs.

Given the small size of most of the countries under review and the substantial flows to offshore centres,⁶⁷ it can be assumed that in

terms of GDP or expressed in per capita figures, financial integration between these countries and jurisdictions and their respective anchor countries is unusually large. Indeed, the limited amount of information available suggests that funds from residents of the respective anchor countries account for a substantial share of assets managed in dollarised/euroised OFCs (see for example UK Home Office 1998). Hence, financial integration via the establishment of offshore financial centres seems to be a third characteristic that distinguishes dollarised/euroised countries and jurisdictions from other countries (see Box 4).

⁶⁵ We define countries as “highly tourist-oriented” if the number of annual overnight visitors exceeds the population.

⁶⁶ There are no data available for 20 cases of dollarisation/euroisation, namely American Samoa, Christmas Island, the Cocos Islands, Nauru, Norfolk Island, the Pitcairn Islands, Tokelau, the Faeroes, Greenland, the Falkland Islands, Guernsey, Gibraltar, Jersey, the Isle of Man, Saint Helena, the Vatican City, San Marino, Mayotte, Saint Pierre and Miquelon, and Wallis and Futuna.

⁶⁷ For example, offshore centres account for roughly 8% of total foreign claims by BIS reporting banks and for about 42% of total foreign claims by BIS reporting banks that are held against non-developed countries.

Box 4

SUSTAINED CASES OF DOLLARISATION/EUROISATION – EVIDENCE FROM A LOGIT MODEL ON THE ROLE OF FINANCIAL TRANSFERS, TOURISM DEPENDENCE AND OFFSHORE FINANCE¹

The analysis of sustained cases of dollarisation/euroisation highlights financial dependence, tourism and offshore finance as being special features of these countries. Using the dataset provided by Frankel and Rose (2002),² it can be shown that these characteristics have a statistically significant influence on the probability of two countries sharing a common currency, controlling for the influence of other variables.

To model financial dependence, tourism and offshore finance as explanatory variables, the following data series were created:

¹ The box is based on Mehl and Winkler (2003).

² In total, the data set contains 41,678 country pairs of observations spanning six different years (1970, 1975, 1980, 1985, 1990 and 1995) and includes the CFA franc zone and ECCA countries as countries sharing a common currency. Hence, the definition of a currency union is wider than that of dollarisation/euroisation used in the main text. Controlling variables are bilateral trade, joint economic “mass”, institutional dependence, as well as common language, borders and membership in a regional trade agreement.

Table 3.A Logit estimates

(dependent variable: currency union)

	(1)	(2)	(3)	(4)	(5)	(6)
Financial dependence dummy (50% threshold)	3.28 (0.00)	3.63 (0.00)	4.39 (0.00)		3.08 (0.00)	
Financial dependence dummy (20% threshold)				3.03 (0.01)		2.44 (0.03)
Offshore centre dummy	1.75 (0.08)	2.19 (0.00)	1.83 (0.04)	2.07 (0.00)	2.75 (0.00)	2.55 (0.00)
Tourism dependence dummy	1.91 (0.06)	2.19 (0.04)	2.81 (0.00)	2.21 (0.14)	1.51 (0.10)	1.37 (0.16)
Log (product GDPs)	-0.79 (0.02)	-0.40 (0.00)	-0.20 (0.00)	-0.42 (0.00)	-0.45 (0.00)	-0.46 (0.00)
Log (bilateral trade)	0.81 (0.00)	0.58 (0.00)		0.61 (0.00)	0.66 (0.00)	0.69 (0.00)
Common regional trade agreement dummy					2.26 (0.12)	2.57 (0.04)
Institutional dependence dummy					2.62 (0.00)	3.03 (0.00)
Common borders dummy					4.16 (0.00)	3.29 (0.05)
Common language dummy					0.06 (0.95)	-0.19 (0.84)
Constant	11.00 (0.29)					

– *Financial dependence.* A financial dependence dummy is set equal to 1 when a country receives more than 20% or 50% of net ODA flows from one donor country, as reported in OECD (2002), and 0 otherwise. When OECD data are unavailable, a country is considered financially dependent if it is characterised by the CIA World Factbook as receiving “substantial transfers” or being “highly dependent on subsidies”.

– *Tourism.* A country is considered to be highly dependent on tourism flows from another country when (i) annual overnight visitors in 2000 (or the latest period available) exceeded its own population, and (ii) arrivals from the anchor country accounted for the highest share of tourists, as reported in World Tourism Organization (2002).

– *Offshore finance.* Countries are considered as an offshore centre if they are reported as such by the Financial Stability Forum (2000) or classified as a tax haven by the OECD (2000).

Adding these variables to the Frankel and Rose data set reduces the number of country pairs to 5245.³ Among them, 27 are currency unions, which implies that the sample unconditional

3 Since data on financial dependence by definition are only available for country pairs including one OECD country, the size of the bilateral panel data set is around 12% that of Frankel and Rose (2002). Owing to data unavailability, both the tourism dependence and offshore centre dummies are time-invariant, while all other variables are time-variant.

probability (frequency) of observing a currency union is 0.5%.⁴ Using logit estimates the following results can be obtained (Table 3.A), where standard errors are robust to clustered heterogeneity with *p*-values in parentheses.

- Financial dependence, offshore finance and tourism dependence all positively and significantly influence the probability of two countries sharing a common currency (see Table 3.A, regressions (1) and (2)).
- The effect of financial dependence and offshore finance is robust to changes in specification. Lowering the threshold used to define financial dependence from 50% to 20% of net ODA flows, or including in the regressions dummies to control for a common language, borders and membership in a regional trade agreement as well as institutional independence, leaves results broadly unchanged (see Table 3.A, regressions (4), (5) and (6)). Conversely, the effect of tourism dependence proves less robust, suggesting that tourism dependence is less important than financial dependence or the existence of offshore activities in explaining the probability of a country choosing to forego its own currency.
- Finally, in line with traditional OCA theory, higher (bilateral) trade integration influences positively the probability that a country pair forms a currency union. Conversely, the probability of a currency union is negatively affected by the economic “mass” of a country pair, possibly indicating that, for a given anchor country’s economic size, the smaller the other country is, the more likely it is to forego its own currency. Two countries that are institutionally dependent, share borders, but not a language, and that are part of the same regional trade agreement, are also intuitively found to have a higher probability of sharing a common currency.

Using the logit results to estimate conditional probabilities – regression (2) is taken as a baseline model, evaluated at the sample averages of the 27 currency unions’ bilateral trade and joint economic mass⁵ – leads to the following results:

- For a given country pair, the conditional probability of a currency union if one of the countries is financially dependent, tourism-dependent and an offshore centre is estimated at 85.3%.
- If none of the two countries is financially dependent, tourism-dependent or an offshore centre, the conditional probability of a currency union is then only 0.2%.

This suggests how massive the effect of financial and tourism dependence as well as offshore finance is on a country’s likelihood of sharing the currency of another country. By the same token, the probability of observing a currency union if one of the countries is financially dependent is 6.7%, while it is 1.7% if one of the countries is either tourism-dependent or an offshore centre. This indicates that financial dependence is *ceteris paribus* relatively more important in a country’s decision to forego its own currency.

4 The currency union observations in the sample are Australia and Kiribati (1970, 1975, 1980, 1985 and 1990), Denmark and Greenland (1990), France and French Guiana (1990), France and Guadeloupe (1985 and 1990), France and New Caledonia (1985 and 1990), France and Reunion (1980, 1985 and 1990), India and Bhutan (1985), New Zealand and the Cook Islands (1980), the US and Liberia (1970, 1975, 1980 and 1985) and the US and Panama (1970, 1975, 1980, 1985, 1990, 1995).

5 Choosing another specification from Table 2 or changing the values plugged in for the bilateral trade and economic variables may obviously impact the magnitude of the estimated probabilities. Thus, only the overall conclusions should be taken literally.

6 COMMON ELEMENTS AND MAIN LESSONS FROM SUSTAINED CASES

The review of cases of sustained dollarisation/euroisation was motivated by recent empirical research on the trade effects of a common currency, as it has strong implications for the dollarisation/euroisation debate. This is because results suggested that countries considering dollarisation/euroisation have reason to be confident that immediate gains in terms of stability will be followed by closer integration with the respective anchor country. As integration is seen as a key mechanism for supporting the long-run sustainability of the exchange rate arrangement, this evidence could be seen as supporting the view that optimum currency areas develop endogenously.

Keeping data limitations in mind, the comprehensive analysis of sustained cases, considering a wide range of factors to assess the costs and benefits of establishing a common currency area by means of official unilateral dollarisation/euroisation, qualifies this result, as the analysis suggests that sustained cases of dollarisation/euroisation have taken recourse to three integration mechanisms that are rather exogenous to the exchange rate regime: fiscal transfers from the anchor country, tourism and offshore finance.

In terms of the criteria stressed by the new and old OCA theory, the results of the analysis can be summarised as follows:

THE NEW OPTIMUM CURRENCY AREA THEORY

– There is strong support for the view that dollarisation/euroisation is associated with considerable monetary stability. Countries with a long history of dollarisation/euroisation seem to have similar inflation patterns as their respective anchor countries. Exceptions can be found in those island economies whose production structure is narrowly based on one or two key products. Here nominal convergence with the anchor countries has been more limited.

- Political considerations played a key role in the countries' "choice" to adopt a foreign currency, as most cases are politically-dependent jurisdictions or have had this status for a very long time. Only in the few Caribbean cases where there has been a change in the anchor currency from the British pound to the US dollar, might it be argued that the quest for monetary stability motivated the anchor currency switch.
- Dollarised/euroised countries have a significantly higher per capita income than countries with their own currencies. However, this is mainly owing to the performance of dependencies in the sample of countries. Independent dollarised/euroised countries have about the same average per capita income as countries with their own currencies.
- Earlier research has shown that the fiscal performance of dollarised/euroised countries has been similar to that of countries with their own currencies. The analysis conducted above reveals that many dollarised/euroised countries depend to a large extent on fiscal transfers from their respective anchor countries.
- Dollarised/euroised countries, in general, run large trade deficits, as their volume of imports is often a multiple of their volume of exports.
- For Panama, the only dollarised country that has issued international bonds, there is little evidence that dollarisation has allowed a decoupling from global emerging market trends. Rather, spreads over US Treasuries seem to be driven to a significant extent by factors common to emerging markets.

Against the background of the cost-benefit criteria discussed in Section 2, the experience of sustained cases suggests that monetary stability is a key feature in dollarisation/euroisation. However, credibility issues did not play a role when countries opted for this

monetary regime, as none of them had conducted an independent domestic monetary policy prior to dollarisation/euroisation. There is also little evidence that dollarisation/euroisation has contributed to fiscal discipline in the respective countries. On the contrary, they have run substantial fiscal deficits that have been largely financed by transfers from the anchor countries. Financial sector development has advanced in many dollarised/euroised countries, but mainly in terms of offshore banking rather than in providing services to residents. Finally, fiscal transfers and revenues from offshore activities and tourism have allowed many countries to run large trade deficits as their import volume is a multiple of their volume of exports.

THE OLD OPTIMUM CURRENCY AREA THEORY

- There is evidence that factor mobility and the associated flow of remittances are important characteristics of some dollarised/euroised countries.
- Some countries, particularly remote island states, show a high degree of product concentration.
- As suggested by recent research on the trade effects of a common currency, countries with a long history of dollarisation/euroisation show a high degree of trade integration with their respective anchor country. Moreover, in the few cases where there has been a change in the anchor currency, e.g. from the British pound to the US dollar, this switch was in line with changing patterns of trade integration.
- In addition to strong trade linkages, dollarised/euroised countries are highly integrated with their respective anchor countries in political terms. Many of them are dependencies of their anchor countries. These strong political links are evidenced by large fiscal transfers from the latter.
- Offshore finance is another highly developed aspect of integration between

anchor countries and the dollarised/euroised economies.

- Many dollarised/euroised countries are tourism-dependent. Even though tourism flows to these countries do not only originate from the respective anchor countries, it is fair to characterise tourism as a key aspect of integration in dollarised/euroised countries.

Summing up, the analysis of sustained cases of dollarisation/euroisation suggests that close integration with the anchor country is a feature covering many areas. In addition to international trade, integration via fiscal transfers, offshore finance and tourism have also played a crucial role.

In stating this, it is not intended to assert that the mechanisms that have been employed to ensure this high level of integration aimed at making the exchange rate regime sustainable. For example, there is little evidence that the patterns of financial aid or financial flows are strongly linked to exogenous, asymmetric shocks or have shock-smoothing characteristics (Kose and Prasad 2002). There is also little evidence that the development of tourism facilities or the establishment of offshore centres were primarily motivated by such considerations.⁶⁸ However, irrespective of the motives those policies were based on, sustained cases of dollarisation/euroisation represent examples of the *integration view* of dollarisation/euroisation.

When conducting these policies, special, exogenous characteristics of the sustained cases, such as size, political status and location, seem to have been instrumental in achieving such a high degree of integration.

- *Small size.* Their small size allows fiscal transfers from donor countries to have

⁶⁸ Rather, they were part of the general development strategy of the respective countries, as policies fostering real integration via tourism and financial integration have been also pursued by a number of other countries with similar characteristics that are not dollarised/euroised.

comparatively large effects on income levels in the recipient countries. This might explain why, irrespective of exchange rate regimes, the degree of aid dependency, measured by the ratio of foreign aid to GDP, is particularly high in small states (Kose and Prasad 2002). In addition, only very small countries may benefit from taking a “free-rider” position by offering non-residents a lenient fiscal and regulatory framework (Padoa-Schioppa 2001; IMF 2000).

questions remain whether countries that do not share these characteristics would be able to draw on the same mechanisms of integration. These considerations are important as, for most other countries, criteria focusing on ‘traditional’ integration instruments, such as trade, foreign direct investment and other cross-border flows, seem to indicate that dollarisation/euroisation is most likely not advisable (see Section 2).

- *Political status.* The fact that they are dependencies or have very close political relations with the anchor countries has a positive effect on all three integration mechanisms identified above. The willingness of countries to grant fiscal transfers is certainly influenced by political considerations and affiliations. Offshore centres can only attract sizeable capital flows if investors feel that political stability is guaranteed. Thus, being a dependency of a politically stable country with a strong and trusted legal environment may be as important as tax and regulatory privileges. The same can be said with regard to tourism. Even the most beautiful landscape is of limited value for the development of tourism if countries lack the political stability that is needed to attract tourists and investment into tourism infrastructure.
- *Location.* Although there are exceptions, the potential for offshore finance and tourism seems to rely to a significant extent on the location of the country, i.e. its being in the geographical vicinity of the anchor country. For tourism, of course, natural beauty and cultural heritage are additional factors determining whether countries can use this integration mechanism.

Thus, there are doubts whether integration between dollarised/euroised and anchor countries has evolved endogenously through the sharing of a common currency. Moreover, if exogenous characteristics have been crucial in achieving the high level of integration,

4 CASES WHERE DOLLARISATION/EUROISATION WAS ABANDONED

Dollarisation/euroisation is often seen as irreversible (Mussa and Loser 1999). Indeed, cases of abandoning dollarisation/euroisation are rare, and mostly related to the gaining of independence by the respective countries. An exception is Liberia, where political turmoil and civil war ended more than one hundred years of dollarisation. However, Liberia's failure to sustain dollarisation may also be explained by economic factors mentioned in the old OCA literature.

I COLONIAL REGIMES

The adoption of another country's currency was one of the most widely-used monetary regimes in the 19th and the first half of the 20th century. At that time, colonial regimes prevailed, and economic theory was still based on the assumption that national economic policies and hence national monies are neither necessary nor powerful.

The institutional features of colonial monetary regimes differed from case to case, but had in common the fact that colonies did not enjoy monetary sovereignty. While several colonial regimes resembled or were based on currency boards⁶⁹, some of them were actually similar to "unilateral" dollarisation/euroisation. Interestingly, the main economic justification for introducing the colonisers' money in the respective colonies was to facilitate trade and integration between the colonial powers and their dependent territories (Ghosh, Gulde and Wolf 2000).

With the decolonisation process, new independent governments wanted to take control of domestic liquidity conditions. They therefore created central banks and introduced new national monies.⁷⁰ The same happened in the early 1990s, when many new states were created owing to the break-up of the Soviet Union, Yugoslavia and Czechoslovakia. All of these started issuing national currencies without seriously considering the adoption of the currency of another country.

2 LIBERIA

2.1 BASIC FACTS

Liberia is a small West African country but, with a population of about 3.0 million, is much larger than most countries with a long history of dollarisation. Founded in 1821 as a haven for freed American slaves, it became independent in 1847. From the very beginning, however, tensions were high between freed American slaves and the local population (World Bank 1997). The indigenous population, which was in favour of severing links with the US, increasingly prevailed in domestic policies in the 1980s and 1990s.

US coins and banknotes had been circulating in Liberia since the 1800s and were declared legal tender in 1944. In 1974 a central bank was established. Fifteen years later, the Liberian dollar was introduced as a fully-fledged currency, pegged to the US dollar at a 1:1 parity. Finally, in 1998 the official parity of the Liberian dollar with the US dollar was formally abandoned.

2.2 ECONOMIC DEVELOPMENTS SINCE WORLD WAR II⁷¹

Until the end of the 1970s, Liberia's post-World War II economic development was based on mining, forestry and rubber concessions

⁶⁹ Currency boards were mainly used in the British Dominions (Ghosh, Gulde and Wolf 2000). In general, colonial powers wanted to create and preserve close monetary links with the colonies. However, at the same time, they wanted to reduce the need to transport money – in particular gold and silver coins – for cost and security reasons. Finally, they had to cope with a growing demand for money from colonies, owing to an increase in trade, as additionally had to face the risk that money circulating in the colonies could be repatriated. This is why colonial powers often centralised monetary powers but created local monetary administrations. In addition, they introduced special series of banknotes and coins for circulation only, but treated them as legally equal to their domestic currencies or established legal instruments to preserve a 1:1 parity.

⁷⁰ An overview of the historical evolution of monetary regimes in Africa is provided by Honohan and O'Connell (1997).

⁷¹ If not otherwise noted, information on macroeconomic and trade developments are based on data provided by the IMF (International Financial Statistics, Direction of Trade Statistics) and the World Bank (Bruno and Easterly (1993) dataset and the Global Development Network Growth database).

dominated by multinational companies, accounting for more than 40% of GDP (Maynard 1970; World Bank 2001a). In the 1960s and early 1970s, the country saw a continued increase in living standards, with GDP growth rates averaging 6% and 4% respectively. At that time, GDP per capita reached about 85% of the level prevailing in Egypt.⁷² However, the income distribution remained highly skewed owing to the existence of a huge subsistence agricultural sector, accounting for most of the employment (80% of the workforce). Estimates put average per capita GDP in this traditional sector of the economy at about one-tenth of income levels reached in the modern sector of the economy.

The oil price increase in the early 1970s confronted the country with a substantial terms-of-trade shock. Moreover, the subsequent recession in industrial countries led to a reduction in demand for Liberian exports. Growth rates declined, reaching on average only 1% per annum in the period 1974 to 1979, which was not enough to stabilise per capita income levels. In 1979, government plans to increase the price of rice led to riots and widespread violence. A year later a coup placed the country under military rule and a decade of economic decline began. In 1989, civil war broke out and economic activity came to a virtual standstill, with GDP per capita falling to about 10% of its pre-war level.

2.3 OPTIMUM CURRENCY AREA PROPERTIES⁷³

THE NEW OPTIMUM CURRENCY AREA THEORY

Available evidence for Liberia supports the proposition that dollarisation favours a low-inflation environment. From 1966–1989, the period for which data are available, Liberian inflation remained subdued and followed similar patterns as in the United States (see Chart 4.1). The stability record is particularly noticeable after the breakdown of the Bretton Woods system. Whereas Liberia managed to keep inflation low, neighbouring Sierra Leone and Ghana experienced periods with inflation reaching more than 100% per year. However,

the example of two neighbouring CFA franc zone countries suggests that the inflation record was fairly similar under more traditional exchange rate peg conditions.

Turning to fiscal developments, the post-1974 period was characterised by rising budget deficits as the government tried to stimulate the economy by launching large public investment programmes. Moreover, the newly created National Bank of Liberia was heavily involved in financing government expenditures. In 1979, about 95% of its total assets consisted of claims on the central government. The balance of the consolidated central government budget turned from a surplus of USD 6.8 million in 1974 to a deficit of about USD 140 million in 1979, approximately 13% of GDP. Fiscal discipline eroded before dollarisation finally came to an end.

In 1988 Liberia's fiscal deficit had increased to almost 19% of GDP. The balance of payments had worsened as well, while the level of outstanding debt had reached 170% of GDP. Local and foreign depositors transferred convertible deposits abroad, contributing to a dramatic fall in US dollar liquidity. The authorities responded by starting to manipulate the currency regime, attributing money-issuing competencies to the National Bank of Liberia.

THE OLD OPTIMUM CURRENCY AREA THEORY

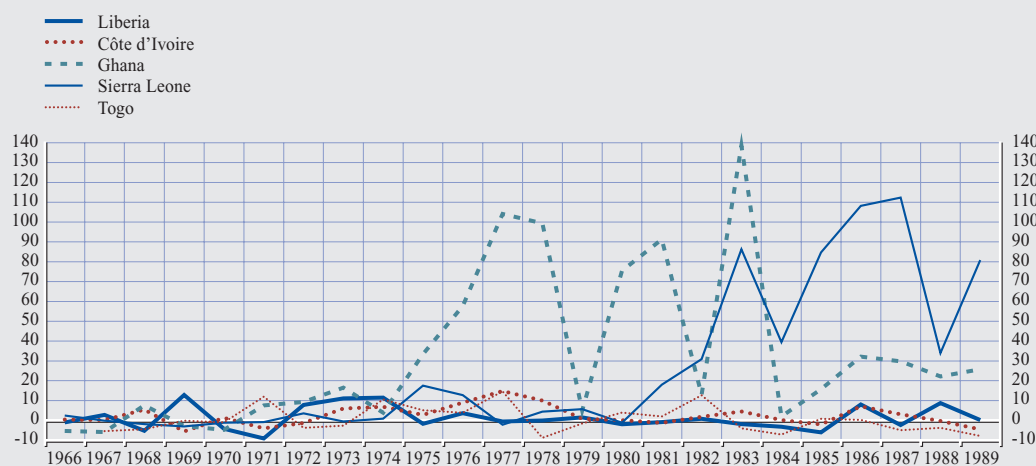
In the 1960s and early 1970s, in stark contrast to policies in most other African countries, which were following developing strategies based on import substitution, Liberia aimed at real and financial integration with the anchor country and the world economy. For example, in the 1960s Liberia's trade-to-GDP ratio rose from about 70% to more than 100%, making Liberia one of the most open economies of the world. At that time, the US was Liberia's major trade partner, accounting for more than one-third of Liberian exports and about 40% of

⁷² The figure is based on the Penn World Tables compiled by Heston and Summers.

⁷³ The following analysis does not include the period after the outbreak of civil war in 1989.

Chart 4.1 Selected African countries: inflation differential to the United States

(in percent per annum, 1966-1989)



Sources: Bruno and Easterly (1993), authors' calculations.

imports.⁷⁴ The raw material sector attracted substantial foreign investment and the banking system was entirely in foreign hands, playing an important role in financing deficits and surpluses in the Liberian balance of payments.⁷⁵ Finally, to attract even more foreign capital and to boost government revenues, Liberia introduced the “flag of convenience” system in 1951.⁷⁶

Integration via fiscal transfers was also substantial, as Liberia benefited from considerable aid flows. In the 1960s these flows reached about 10% of GDP on average per annum.⁷⁷ Roughly 70% of this aid came from the United States.⁷⁸

Economic links with the US declined in the 1970s and 1980s. The US share in total trade of goods dropped significantly, and in 1988 exports to (imports from) the US accounted for only 18% (20%) of total exports (imports). The same observation can be made with regard to aid flows, which declined considerably in the 1970s and 1980s, with the US share dropping to about 45%. As with fiscal discipline, the flow of aid declined before the exit from dollarisation.

From the very beginning, however, Liberia’s economic structure was highly concentrated, as its economy is a narrowly resource-based one with a large subsistence agricultural sector. Thus, there was considerable potential for asymmetric shocks, which indeed materialised in the early 1970s when oil prices rose dramatically. As monetary policy was not available as an adjustment mechanism, the government resorted to a fiscal policy that very soon became unsustainable. When the government tried to implement consolidation measures, the fragile political situation exploded, leading not only to the de facto dismissal of dollarisation, but to general economic decline and civil war.

⁷⁴ 80% of total trade was with OECD countries.
⁷⁵ BIS data reveal that at the end of 1983, claims on Liberia accounted for 1% of all foreign claims of BIS reporting banks to developing countries and offshore centres. Thus, Liberia ranked 30th among roughly 200 countries and jurisdictions.
⁷⁶ Of around 1,500 ships registered in Liberia in 2000, 860 were considered to be operating under a “flag of convenience”. Liberia also established an offshore financial centre, although, in contrast to other dollarised/euroised countries reviewed in Section 3, activity levels were rather low.
⁷⁷ According to data provided by the OECD (2002), by this measure of aid dependency, Liberia ranked sixth among 85 developing countries where the respective data are available.
⁷⁸ For sake of comparison, the US share in total aid to African countries in the 1960s amounted to about 29%.

3 MAIN LESSONS FROM CASES OF ABANDONMENT

The analysis seems to confirm that in the past, close political relations with the anchor country was the main motive for countries to opt for dollarisation/euroisation, with the status of a colony being historically the most relevant case. When these political relations broke down and former colonies became independent states, the exchange rate regime was abandoned and domestic currencies were introduced.

The case is somewhat different in Liberia, which has been an independent country since the middle of the 19th century. However, close links with the United States prevailed until the mid-1970s, underlined by the fact that the US provided the largest share of the substantial aid granted to the country and was the country's major trading partner. But these links became progressively weaker over time, so that when the economy was hit by the highly asymmetric oil price shock, the monetary stability with which dollarisation is associated was undermined.

In this respect, the Liberian case can be cited in support of the traditional view on optimum currency areas, stressing the need for domestic monetary policy as an adjustment instrument. Thus, with hindsight, one could argue that Liberia should have opted for an orderly "exit option" from dollarisation in the mid-1970s. However, it has to be mentioned that a currency of one's own would not have changed the fundamental characteristics of Liberia's real economy, i.e. its more or less monolithic structure and the skewed distribution of income. It also would not have lessened the need for adjustment. Finally, it is also doubtful, given the political situation in the country, whether domestic monetary policy would have been used in a prudent way, i.e. facilitating the adjustment process rather than aggravating it by following inflationary policies. Thus, the main lessons the Liberian case holds for other countries is (1) that dollarisation/euroisation does not guarantee monetary and economic

stability, and (2) that there are certain conditions that need to be fulfilled to make dollarisation/euroisation sustainable.

5 RECENT CASES OF DOLLARISATION/ EUROISATION

I OVERVIEW OF CASES

With the end of the colonisation period, the adoption by one country of another country's currency for a long time fell out of fashion. In the late 1990s, however, this picture changed significantly (see Table 5.1). In the Balkans, Montenegro and Kosovo introduced the euro. In Latin America, Ecuador and El Salvador set out to abandon their currencies in favour of the US dollar, while in Asia, the United Nations Transnational Administration in East Timor officially made the US dollar the currency to be used for compulsory payments, effectively dollarising the country.

Table 5.1 Recent cases of dollarisation/ euroisation

Cases	Population	Currency adopted
Kosovo	1,900,000	Euro
Montenegro	680,000	Euro
Ecuador	12,920,000	US dollar
El Salvador	6,240,000	US dollar
East Timor	890,000	US dollar
<i>Total</i>	<i>22,630,000</i>	

Source: Authors' compilation.

In comparison with the sustained cases, countries that have recently adopted a foreign currency are much larger. Ecuador and El Salvador together have a population almost as large as the sum of all countries listed in Table 3.1. Moreover, the most recent history of dollarisation/euroisation involves only the US dollar and euro as the currencies adopted.

The geographical pattern resembles that of the sustained cases, with European countries choosing the euro and countries in the Western Hemisphere adopting the US dollar. East Timor, located in South-East Asia, also adopted the US dollar.

In none of the most recent cases was dollarisation/euroisation introduced as part of a political process involving the anchor country. However, Montenegro, Kosovo and East Timor adopted the foreign currency in an immediate post-conflict situation that was leading to

independence or a newly-defined political status.

2 KOSOVO AND MONTENEGRO

2.1 BASIC FACTS

KOSOVO

Following the end of the war of March-June 1999, the United Nations Mission in Kosovo (UNMIK) identified the Deutsche Mark as the preferred currency to be used in concluding agreements and settling transactions.⁷⁹ Since 2002 the economy has been fully euroised. The Banking and Payment Authority of Kosovo (BPK), established in November 1999, has the objective to foster an efficient and safe payment system, and to ensure the liquidity, solvency, and efficient functioning of the banking system. Additionally, the BPK regulates foreign exchange operations, acts as a fiscal agent for fiscal authorities, and offers custodial facilities.

MONTENEGRO

In November 1999, the Montenegrin government unilaterally declared the Deutsche Mark as a parallel legal tender to the Yugoslav dinar in November 1999. In January 2001 it became sole legal tender. Since 2002 the economy has been fully euroised. The Central Bank of Montenegro (CBM) has the right to set minimum reserve requirements and is responsible for establishing and maintaining a sound banking sector and an efficient payment system. It may provide liquidity through open market operations, using excess foreign reserves, and it has the power to regulate foreign exchange operations and to act as an agent of the Republic.

⁷⁹ Neither European nor German authorities were involved in the euroisation process in Montenegro or in Kosovo. There are no agreements between the European Union or the Eurosystem and Montenegro or Kosovo about the use of the euro as their official currency. Moreover, there is no official link between the financial systems of the two entities and the euro area.

2.2 PRE-EUROISATION ECONOMIC DEVELOPMENTS⁸⁰

The economies of Kosovo and Montenegro were an integrated part of first the former Yugoslavia (until 1992) and then the Federal Republic of Yugoslavia (until 1999). In the 1960s and 1970s, the country saw growth and comparatively high living standards.⁸¹ At the end of the 1980s, however, economic and political strains increased, culminating in the first episode of hyperinflation (Lahiri 1991). When the country began to unravel along ethnic lines in the early 1990s, a decade of steep economic decline began, with GDP falling by more than 50%. Moreover, in December 1993 and January 1994 the newly established Federal Republic of Yugoslavia faced one of the most extreme phases of hyperinflation in economic history (Avramovic 1995). Once again, subsequent reform efforts proved to be short-lived. In 1999, when Kosovo and Montenegro opted for euroisation, annual inflation stood at 42% (IMF 2001e).

KOSOVO

Kosovo had the lowest level of per capita income among the former Yugoslav republics and provinces, reaching around 30% of the Yugoslav average in 1988 (Lampe 2000). In the 1990s, the economy exhibited further signs of decline, when the autonomy of Kosovo within the Republic of Serbia was suspended. The 1999 conflict caused additional destruction of economic infrastructure, with bridges, roads and two-thirds of all houses damaged or destroyed (Corker, Rehm and Kostial 2001).

GDP was estimated at EUR 2 billion for 2002, implying an income level per capita of €1,000 per year. The structure of GDP is highly distorted owing to the extraordinary amount of foreign transfers. Donor assistance and local spending by expatriates are estimated to generate about one-fourth of value-added in the economy, while remittances from Kosovo Albanians working abroad represent some 25-30% of GDP (World Bank 2003b).⁸²

MONTENEGRO

Montenegro's growth performance followed closely that of the former Yugoslavia. GDP per capita was at about 75% of the country average. The economic structure is biased toward industry, tourism and agriculture. When euroisation was introduced, Montenegro showed the typical features of an economy at the beginning of transition: its industrial sector was dominated by state-owned enterprises, the grey economy accounted for roughly 30% of GDP, and the banking sector widely lacked confidence. At end-2002, annual per capita income was estimated at €1,800 (Economic Reform Agenda for Montenegro 2003).

2.3 OPTIMUM CURRENCY AREA PROPERTIES

THE NEW OPTIMUM CURRENCY AREA THEORY

Euroisation in Kosovo and Montenegro followed two decades of extreme monetary instability accompanied by a high degree of unofficial euroisation, as the Deutsche Mark was widely used as a store of value and as a medium of exchange.⁸³ Thus, with euroisation, post-war reconstruction was put on a sound monetary footing, eschewing credibility problems related to the former domestic currency.⁸⁴ Indeed, inflation rates declined

80 If not otherwise noted, data used in the following sections are taken from the Kosovo Banking and Payment Authority, the Central Bank of Montenegro and various editions of Montenegro Economic Trends. However, as questions on the reliability of the data remain, any conclusions should be interpreted with care.

81 In 1980, real GDP per capita in Yugoslavia ranked 42nd among 142 countries in the Penn World Tables and reached almost 50% of the real GDP per capita of France.

82 Owing to the sizeable flows of remittances, national income is significantly higher than GDP.

83 Whereas up to the early 1990s unofficial euroisation mainly took the form of asset substitution, this changed after foreign currency deposits were frozen. The euro cash changeover in January 2002 revealed the magnitude of currency substitution (BPK 2003a; Central Bank of Montenegro 2002, 2003). Kosovo repatriated almost DEM 1.2 billion. Moreover, the three months prior to the cash changeover saw an increase in bank deposits by about €300 million, as residents placed DEM holdings at banks to minimise changeover costs and risks. Montenegro reported a changeover of more than DEM 900 million by end-March 2002. Estimates for end-2002 put euro cash in circulation at €440 million in Kosovo and €250 million in Montenegro.

84 See also the assessment in World Bank (2003b).

rapidly (see Table 5.2). In Kosovo, they have now come close to euro area levels, whereas Montenegro has been facing substantial inflation differentials to the euro area.

Table 5.2 Post-euroisation inflation in Kosovo and Montenegro

(% p.a.)			
Year	2000	2001	2002
Kosovo	10.0	11.6	3.6
Montenegro	36.1	21.8	16.8
memo: Euro area	2.1	2.3	2.3

Sources: BPK, ISSP-CEPS, ECB.

In 2001/2002 Kosovo's economy experienced strong growth, based on foreign aid, private remittances and a vibrant private service sector, largely operating in the informal economy (IMF 2001b). Montenegro's growth record has been a more modest one, as the transition to a market economy has been more gradual, both in real as well as in institutional terms, while foreign aid, while still significant, has not been as sizeable as in the case of Kosovo.

Government finances in Kosovo are characterised by sizeable budget deficits that are almost exclusively financed by donor support (World Bank 2003b). In Montenegro, where the donor community covered most of the financing gap in 2000, the government has been increasingly able to turn to domestic sources, mainly commercial banks. Moreover, in 2002 tight fiscal policies and privatisation revenues led to a budget surplus (Ministry of Finance of the Republic of Montenegro 2003). Both entities have sizeable trade deficits that are mainly financed by private and official transfers.

Kosovo's financial sector was created from scratch after the war, with the BPK issuing licenses to seven commercial banks. At the end of 2002, total assets amounted to €470 million, i.e. roughly 25% of GDP. Local deposits represent the main source of funds, with deposit interest rates closely following interest rate developments in the euro area.⁸⁵

Montenegro's financial sector has developed quite differently, as most Montenegrin commercial banks have a history that dates back to the socialist and post-socialist Yugoslav era. At that time, they were mainly operating as "pocket banks", i.e. credit institutions owned by or linked to businesses that at the same time were their main customers (ISSP-CEPS; Gros and Whyte 2000). Thus, poor governance and bad lending to insolvent borrowers were widespread phenomena. Since euroisation, banking sector reform has been high on the reform agenda.⁸⁶ Nevertheless, interest rates on loans and deposits have varied widely, reflecting different risk profiles of banks and their corporate customers (Central Bank of Montenegro 2003b; Ostojic 2002). Finally, short-term Montenegrin government Treasury bills are traded at considerably higher yields than comparable euro-denominated bills issued by the central banks of Croatia and Slovenia, indicating a higher solvency risk associated with Montenegro. Moreover, interest rate dynamics do not seem to follow those in the euro area.

THE OLD OPTIMUM CURRENCY AREA THEORY

– Factor mobility

For both entities, factor mobility is high, as a sizeable number of Montenegrins and Kosovars live and work abroad, mainly in the EU and Switzerland. The economic impact of these factor movements is large as remittances constitute an important source of income in the respective entities. In Kosovo, estimates put remittances for 2002 at about €525 million, which constitutes 25-30% of GDP (World Bank 2003b).

– Fiscal transfers

Official transfers have formed the backbone of Kosovo's reconstruction efforts since mid-

⁸⁵ Reflecting the difficult lending environment, lending rates have been much higher, varying from 13-15% p.a., excluding loans for micro-enterprises (BPK 2003b).

⁸⁶ For a quick overview, see Ministry of Finance (2002b).

1999. About 75% of public spending in 2000/2001 was donor-financed (World Bank 2003b). Support from the EU amounted to €360 million in 2000 and 2001, making it the largest donor to the region. In addition, some 36,000 soldiers and about 800 civilian police officers from EU Member States have been serving as members of the Kosovo Force (KFOR) and the local police (EC 2003a). In Montenegro, foreign aid (including assistance by NGOs) represented about 7.5% of GDP in 2002, down from 14% in 2001. In the 2002 government budget, foreign aid accounted for roughly 12% of total revenues (ISSP-CEPS).

– *Product diversity*

Whereas Kosovo's economy is just in the process of discovering its comparative advantages, Montenegro's export industry is highly concentrated, with aluminium accounting for more than 60% of total exports (ISSP-CEPS).

– *Real and financial integration*

Both economies are highly open, with openness ratios of about 75% (Kosovo) and 100% (Montenegro). At the same time, trade balances have been recording sizeable deficits, reaching about 50% of GDP in Kosovo (BPK 2003a) and 35% of GDP in Montenegro (ISSP-CEPS). These deficits are covered by donor funds, remittances and – in the case of Montenegro – by a surplus in the balance of services owing to tourism revenues. Moreover, many transactions and incomes, for example in the area of tourism, are not registered (Stern and Drakic 2002). Informal capital inflows, i.e. private transfers in cash from Montenegrins living abroad, are said to be significant as well.

Trade is still focused on the neighbouring former Yugoslav republics, while integration with the EU is limited. In Kosovo, just 22% of 2002 imports reported by a country breakdown were from the EU and Switzerland, compared with about 40% from the three neighbouring former republics of Yugoslavia (BPK 2003a). In Montenegro, imports from the former Yugoslav republics accounted for roughly 45%

of total 2002 imports (ISSP-CEPS), whereas Italy, Greece, Germany and Austria contributed about 24%. As aluminium, Montenegro's major export item, is mainly exported via a Swiss trading company, Switzerland accounted for 45% of total exports. Apart from this, Serbia and Kosovo are major export destinations, with a combined share of roughly 30% (ISSP-CEPS).

Tourism is a field of integration that Montenegro has high expectations of (Stern and Drakic 2002). Financial integration can also be improved. For example, foreign participation in the banking sector has so far been negligible.⁸⁷ In Kosovo, however, euro area institutions and commercial banks have become – next to international financial institutions – majority shareholders of Kosovo's two largest banks. Moreover, Kosovo's banks hold most of their sizeable liquid assets as deposits in euro area commercial banks.

3 ECUADOR AND EL SALVADOR

3.1 BASIC FACTS

Ecuador dollarised in March 2000, substituting the US dollar for its domestic currency, the sucre.⁸⁸ Since then all entities have been obliged to maintain their legal accounting records in USD. Moreover, the authorities have introduced new rules in the field of banking supervision and regulation. Commercial banks continue to settle accounts on the books of the central bank and hold reserve requirements at the central bank.

El Salvador gave the US dollar legal tender status in January 2001 in parallel to the

⁸⁷ A peculiar feature of Montenegro's financial development was the attempt to establish an offshore banking centre. Information on this is limited, but about 500 banks were potentially created, most of them in 2000. In early November 2002, however, the Montenegrin parliament removed the special status of these banks, and subsequently their licenses were revoked by the Ministry of Finance (World Bank 2003c).

⁸⁸ Coins in denominations smaller than one dollar are issued on a currency board basis. For details see IMF (2000c) and Beckerman CH (2001).

domestic currency, the colon, which up to then had been pegged to the US dollar.⁸⁹ As from this date, the central bank is no longer entitled to issue domestic currency. Newly-issued prudential regulations specify that banks have to hold reserves in US dollars with the central bank and are required to hold liquid assets in proportion to their short-term obligations.

3.2 PRE-DOLLARISATION ECONOMIC DEVELOPMENTS

Ecuador's economy is based on oil resources and agriculture, including fisheries. In the 1970s, when prices for natural resources were high, the country experienced a decade of high growth (see Table 5.3). Since then, growth rates have declined, reflecting a series of shocks – such as fluctuations in world oil prices and natural disasters – as well as weak macroeconomic policy management and political instability (Beckerman 2001; Fischer 2001b). From 1982 to 1999 Ecuador did not experience a single year with an inflation rate of less than 20% p.a., and the sucre continuously lost value against the US dollar. While budget deficits were rather modest, the current account showed persistent negative balances, and the external debt rose to about 95% of GDP.

In 1998/1999, the economy was hit by three external shocks: the weather phenomenon of El Niño, which caused severe economic damage, the decline in world oil prices, and the contagion effects of the Brazilian and Russian financial crisis (IMF 2000c). Growth collapsed,

inflation soared, the currency sharply devalued – Ecuador abandoned its crawling peg regime in early 1999 (Fischer 2001b) in favour of an independently floating regime – and the banking sector faced substantial solvency and liquidity problems.

At the end of 1999 the sucre again came under heavy pressure in the exchange market, depreciating from about 11,000 sucre per USD to 24,825 sucre per USD on 11 January 2000, and political instability ensued. Ecuadorian authorities ultimately decided to adopt the US dollar as the domestic currency at the fixed conversion rate of 25,000 sucre per USD.

Following a long civil war, *El Salvador's* economic situation improved significantly in the 1990s (see Table 5.4). Based on a strong service sector accounting for 60% of GDP, the economy grew at an average annual rate of almost 5%, notwithstanding a series of natural disasters and falling coffee prices, at that time the major export item. Nevertheless, the country still has one of the highest rates of inequality in the world in terms of income distribution (EU 2003b).

Inflation slowed gradually, reaching levels of less than 3% in the late 1990s. From 1993 onwards the exchange rate was pegged at a level of 8.75 colones per US dollar. The government

⁸⁹ For details see http://www.integracion.gob.sv/monetary_integration_law.html

Table 5.3 Selected macroeconomic indicators – Ecuador

	Average 1970-79	Average 1980-89	Average 1990-99	1999
GDP growth	9.2	2.4	1.9	-7.5
GDP per capita growth	5.8	0.2	-0.3	-9.2
Inflation	11.9	34.0	39.0	52.2
Sucre per USD	25	175	4,636	20,243
Real effective exchange rate	n.a.	143.8	92.8	80.3
Government balance (as a % of GDP)	-1.8	-1.5	0.5	-0.7
Current account balance (as a % of GDP)	-5.3	-5.4	-3.4	6.7
External debt (as a % of GDP)	30.7	80.2	94.8	81.2

Sources: IMF, World Bank, authors' calculations.

Table 5.4 Selected macroeconomic indicators – El Salvador

	Average 1970-79	Average 1980-89	Average 1990-99	1999
GDP growth	3.9	-1.9	4.7	2.0
GDP per capita growth	1.9	-3.5	2.4	-0.1
Inflation	9.4	18.5	10.6	0.5
Colones per USD	2.5	3.5	8.6	8.75
Government balance (as a % of GDP)	-0.4	-2.8	-1.7	-2.3
Current account balance (as a % of GDP)	-0.6	-1.0	-0.3	-0.2
External debt (as a % of GDP)	22.3	45.9	33.2	32.8

Sources: IMF, World Bank, authors' calculations.

budget was close to balance in the mid-1990s but recorded higher deficits in the late 1990s. As the current account showed only modest deficits, external debt stayed basically unchanged at around 33% of GDP.

3.3 OPTIMUM CURRENCY AREA PROPERTIES

THE NEW OPTIMUM CURRENCY AREA THEORY

In the 1980s and 1990s *Ecuador* faced persistently high inflation and continuous depreciation of its currency. This period of monetary instability was accompanied by a strong increase in unofficial dollarisation. The percentage of US dollar-denominated deposits in total deposits rose rapidly from 13.3% in 1990 to 53.7% in 1999 (Beckerman 2001).⁹⁰ Dollarisation of bank liabilities was followed by dollarisation of bank assets. At the end of 1999, US dollar-denominated loans accounted for almost two-thirds of total lending.⁹¹ Thus, when the sucre came under pressure in 1998/99, banks' balance sheets weakened substantially, with the share of non-performing loans rising to 45%.⁹² The authorities reacted by putting larger insolvent banks under the newly created Deposit Guarantee Agency, while smaller ones were closed.⁹³ In addition, the government announced a one-year freeze on most deposits in March 1999.

After adopting the US dollar, annual inflation began to converge to US levels (see Chart 5.1), declining from 52.2% in 1999 to 12.5% in 2002. However, this decline was not immediate. Rather, initially inflation increased further in

the course of 2000, partly reflecting the pass-through of the steep depreciation in 1999 and some price liberalisation. As a result, Ecuador experienced a strong real exchange rate appreciation accompanied by a severe deterioration in the current account. The 2000 surplus of 6.6% of GDP turned into a deficit of 6.6% of GDP in 2002. Fiscal developments were positive, mainly owing to the effect of higher oil prices as well as to stronger non-oil revenues associated with higher growth and fiscal reforms.

With the move to dollarisation, liquidity pressure on the banking sector abated. The unfreezing of deposits in March 2000 did not lead to massive withdrawals. By contrast, deposits actually increased slightly in 2000, a tendency that continued in 2001.⁹⁴ Domestic interest rates declined, but did not converge to US levels. In particular, lending rates remained substantially higher than those prevailing in the US. On international capital markets, Ecuadorian bond spreads dropped

⁹⁰ At least partly, the dollarisation ratio rose mechanically after exchange rate depreciations, as the sucre equivalent of dollar balances increased.

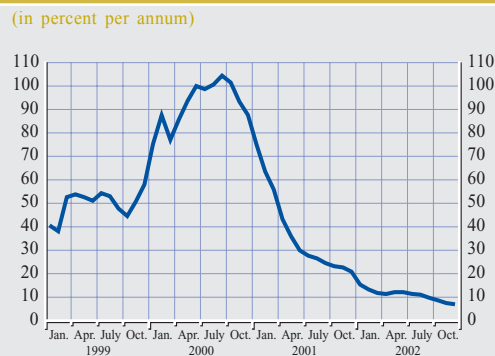
⁹¹ The US dollar was also increasingly used for transaction purposes.

⁹² The increase in non-performing loans mainly took place in dollar-denominated loans, whereas the quality of sucre loans did not deteriorate significantly (Beckerman 2001).

⁹³ By early January 2000, sixteen banks, accounting for about 65% of the financial system's onshore assets, had been intervened or closed, creating fiscal costs estimated at 20% of GDP (IMF 2000c).

⁹⁴ In the course of 2001, severe problems in privatising/liquidating the two largest state-owned banks served as a reminder, however, that the sector's institutional weaknesses have not yet been fully addressed.

Chart 5.1 Ecuador: Inflation differential to the United States, 1999-June 2003



Sources: IMF, authors' calculations.

Chart 5.2 EMBI Global Spreads, 1998-2002



Source: JP Morgan Chase & Co.

substantially in the aftermath of dollarisation. However, spreads did not return to pre-crisis levels, and continue to move in line with spreads on bonds of other emerging market debt (see Chart 5.2). In mid-2002, spreads were severely affected by the Brazilian-induced turmoil.

El Salvador had a pre-dollarisation history of exchange rate stability, low inflation and unofficial dollarisation.⁹⁵ Thus, post-dollarisation macroeconomic stability gains have been rather modest. Indeed, the introduction of official dollarisation was mainly motivated by the authorities' aim to reduce domestic interest rates, exchange rate risk and transaction costs (IMF 2003). Accordingly, the main effect of dollarisation in *El Salvador* was felt in financial markets. Starting with the discussion of the Law on Monetary Integration in autumn 2000, interest rates on colon-denominated assets converged rapidly to the level of interest rates on US dollar-denominated assets. Moreover, interest rates not only declined significantly, but also started to follow rather closely the trend set by the US federal funds rate.⁹⁶

THE OLD OPTIMUM CURRENCY AREA THEORY

– Factor mobility

For Ecuador, factor mobility has increased significantly over the last few years, as close to 500,000 Ecuadorians are said to have left the

country since 1998, mainly for Spain and the US (Solimano 2003). In total, around 1,200,000 Ecuadorians are living abroad, i.e. 10% of the total resident population. The number of Salvadorans living in the United States is estimated at more than one million (Halliday 2003, IADB 2001). Emigration peaked in the war-torn 1980s, when about 550,000 Salvadorans left the country.

In line with these developments, remittances rose from about USD 200 million in 1995 to an estimated USD 1.36 billion in 2000 (approximately 10% of GDP) in Ecuador, and to about 15% of GDP (IMF 1998), close to USD 2 billion, in El Salvador. Both countries are among the principal recipients of remittances worldwide (see Chart 2.1).

– Product diversity

Ecuador's economy depends to a large extent on oil and agriculture, including fishing stocks. For example, petroleum revenues account for roughly one-third of total government revenues, and the shares of oil and banana in Ecuador's total exports are 33% and 22% respectively. Among Latin American countries, the

⁹⁵ With only 8.5% of total deposits held in foreign currency, El Salvador had one of the lowest ratios of unofficial dollarisation in Latin America (World Bank 2000a).

⁹⁶ This is in contrast to 1998/99, when interest rates on Salvadoran financial assets denominated in colones and in US dollars did not follow the decline in the US federal funds rate, but actually increased.

UNCTAD concentration index shows a higher value only for Venezuela.

In the past, coffee was El Salvador's major export item, accounting for 40% of total exports in 1985. Since then, output from *maquiladora* assembly plants has become the major export item (32%)⁹⁷, while the share of coffee in total exports has declined to about 10%. Thus, El Salvador's concentration index of exports calculated by UNCTAD dropped from 0.42 in 1990 to 0.21 in 2000.

– *Integration via fiscal transfers*

El Salvador has been a major recipient of foreign aid since the 1980s (see Table 5.8), reflecting the country's need for help during and after the civil war as well as efforts by the international community to improve the living standards of the poor. According to OECD (2002), the US is the major donor country, accounting for about 70% (40%) of net official assistance provided by OECD countries to El Salvador in the 1980s (1990s).

– *Real and financial integration*

Ecuador and *El Salvador* have openness ratios of close to 60%, with the US the main trading partner for both countries, accounting for about 35% of total trade.

Tourism has not played a major role in either country, whereas net FDI flows to Ecuador have been running at 4 to 5% of GDP in Ecuador over the last few years, mainly related

to investments in the oil sector. Financial integration with the anchor country has been somewhat stronger for El Salvador than for Ecuador. At end-1999, however, the share of claims of US banks in total foreign claims by BIS reporting banks was, according to BIS data, about 40% at end-1999 for both countries.

4 COMMON ELEMENTS AND MAIN LESSONS FROM RECENT CASES

From an optimum currency area perspective, recent cases of dollarisation/euroisation display several common elements.

THE NEW OPTIMUM CURRENCY AREA THEORY

– With the exception of El Salvador, recent cases of dollarisation/euroisation have been plagued by a pre-dollarisation/euroisation history of severe monetary instability, featuring hyperinflationary episodes, and financial and exchange rate crises.

⁹⁷ The term *maquiladora* was originally used to define assembly plants along the US-Mexico border, generally owned by non-Mexican corporations that produce finished goods for the US market based on the import of raw materials. They depend on low-cost labour, advantageous tariffs, and their proximity to the US. In El Salvador, the Free Zones Law and the Export Reactivation Law, both dating from 1990, were designed to encourage investment in maquila and other activities typical of bonded warehouses. Firms located in export processing zones or bonded warehouses that export 100% of their production outside the central American market, including drawback/assembly operations, enjoy substantial tax and regulatory benefits. In the 1990s, the share of maquila in El Salvador's exports and imports increased from 13% to 32% and from 10% to 23% respectively.

Table 5.8 Selected indicators of integration – Ecuador and El Salvador

	Ecuador				El Salvador			
	Average 1970-79	Average 1980-89	Average 1990-99	1999	Average 1970-79	Average 1980-89	Average 1990-99	1999
Trade (as a % of GDP)	49.1	49.3	57.1	62.9	65.7	51.0	54.9	61.7
Trade with the US (as a % of total trade)	n.a.	43.2	37.2	34.9	n.a.	36.0	35.3	31.8
FDI (as a % of GDP)	2.8	0.5	2.7	3.6	0.5	0.3	1.3	1.9
Aid (as a % of GDP)	1.3	1.1	1.4	0.8	1.6	8.1	4.1	1.5

Sources: IMF, World Bank, authors' calculations.

Moreover, their financial systems were characterised by a high and increasing degree of unofficial dollarisation/euroisation. Thus, adopting the US dollar/euro served the purpose of committing the authorities to establishing sound monetary foundations for rebuilding their economies after civil war, political turmoil, and financial and currency crises.

- With the exception of Ecuador, the causes of pre-dollarisation/euroisation monetary instability were almost exclusively domestic ones and relatively unrelated to international capital movements, as Kosovo and Montenegro were not subject to international capital flows. Given its relative stability at home, El Salvador's exchange rate peg was working smoothly.
- Political considerations seem to have influenced the decision in favour of euroisation in Kosovo and Montenegro. However, in contrast to the sustained cases of dollarisation/euroisation, these considerations were not linked to political and economic ties with the anchor country. Rather, they reflected the growing political and economic disintegration within the Federal Republic of Yugoslavia.
- After dollarising/euroising, inflation and interest rates declined, even if there are differences within the group of countries with regard to the extent these developments took place. For example, inflation differentials to the anchor country have remained sizeable in the cases of Montenegro and Ecuador. In Kosovo, deposit rates have declined close to euro area levels, whereas lending rates have been much higher than in the euro area owing to the difficult lending environment.
- It is too early to assess the impact of dollarisation/euroisation on the fiscal and current account sustainability of the respective countries. Moreover, certain country-specific factors, such as the strong

support of the donor community for Kosovo, make it difficult to come to any general conclusions at this juncture.

In general, the available preliminary evidence on recent cases of dollarisation/euroisation supports the view that this exchange rate regime quickly leads to sizeable monetary stability gains, reflected in low(er) inflation and interest rates.⁹⁸ It remains to be seen, however, whether these gains will turn out to be a short-term phenomenon or whether they will be sustained.

THE OLD OPTIMUM CURRENCY AREA THEORY

- A high degree of factor mobility to the respective anchor countries and substantial flows of remittances from the anchor countries to the dollarised/euroised countries characterise all recent cases of dollarisation/euroisation.
- The evidence is mixed with regard to product concentration. Whereas the economies of Montenegro and Ecuador are rather concentrated, relying to a large extent on a few key products, El Salvador has a more diversified economy than in the past (World Bank 2003d). Kosovo's economy is just emerging, by contrast, and export activity is still negligible.
- Fiscal transfers from the international donor community⁹⁹ have played a key role in economic developments in post-euroisation Kosovo. Montenegro and El Salvador have been major recipients of foreign aid as well, albeit to a much lesser extent.
- Trade integration with the respective anchor countries is comparatively low. Kosovo and Montenegro are still strongly linked to the economies of the former Yugoslav republics. The share of the US in the total trade of El

⁹⁸ Having said this, it should be noted that in the European context of the late 1990s, comparable stabilisation gains were made by countries with a similar history of monetary instability but which opted for other exchange rate regimes.

⁹⁹ Since the EU is by far the largest donor, it could be even argued that these transfers are financed by the anchor country.

Salvador and Ecuador is quite high in comparison to most other countries in the world (Table 2.6), but about average when taking the Western Hemisphere as a benchmark.

- Tourism is a rather undeveloped area of integration with the respective anchor countries, in stark contrast to the countries with a long history of dollarisation/euroisation.
- Financial integration with the respective anchor countries is comparatively low. Moreover, offshore finance is either non-existent or negligible.

Thus, at the current juncture, the case for dollarisation/euroisation, taking the perspective of the old optimum currency area theory, is largely built on factor mobility and the associated flow of remittances.¹⁰⁰ In comparison to most of the old cases of dollarisation/euroisation, it seems to be unlikely that tourism and offshore finance may serve as a powerful integration device. Fiscal transfers have been substantial, particularly in the case of Kosovo, but may be reduced in the future. Thus, integration will have to follow the more traditional roads via foreign direct investment and – most importantly – trade. In these categories, current levels of integration leave much room for improvement. Thus, recent cases of dollarisation/euroisation will provide crucial tests for the “endogeneity thesis” in the years to come.

To sum up, achieving domestic monetary stability seems to have been the main economic motive for three of the four recent cases in opting for dollarisation/euroisation. Since then, Kosovo, Montenegro and Ecuador have made substantial gains in terms of monetary stability as inflation and interest rates declined. However, it is too early for an assessment with regard to other macroeconomic aspects, i.e. fiscal and current account balances. As most traditional elements of integration with the anchor countries are still underdeveloped, with

the possible exception of El Salvador and the US, endogenous integration effects would be more than welcome to assure the sustainability of the exchange rate regime in the medium to long run. Further progress in real and financial integration will be of particular importance, as it seems unlikely that transfers from the anchor countries and the development of tourism and offshore finance will again serve as key mechanisms supporting the sustainability of the exchange rate regime.

¹⁰⁰ For example, Barro (2001) argues that the large volume of remittances from Salvadoran workers in the United States back to El Salvador tends to generate a high degree of co-movement of income and output between the two countries.

6 CONCLUSIONS

Recommendations in favour of unilateral official dollarisation/euroisation have become increasingly popular in recent years, as many countries have struggled with financial and exchange rate crises, and domestic monetary policy has faced severe credibility problems. However, these recommendations have been largely based on theoretical arguments, as empirical research on countries that have opted for this exchange rate regime has been rather limited.

Against this background, this paper has explored the actual experience of current cases of official dollarisation/euroisation. The analysis focused on three groups of countries, namely sustained cases of dollarisation/euroisation, cases where dollarisation/euroisation was abandoned, and recent cases of dollarisation/euroisation. It has been organised around a distinction made in the theoretical literature, where macroeconomic stability (theory on sustainable exchange rate regimes and the “new” theory of optimum currency areas) and integration (the “old” theory of optimum currency areas) were identified as key policy issues driving the success (or failure) of dollarisation/euroisation.

The analysis can be summarised as follows:

- *Country size is an important factor.* Indeed, all of the sustained cases are small countries, many of them even microstates. Only the recent cases involve countries with a larger population, but even these in comparison to most of the countries in their respective class – i.e. emerging market economies – can still be considered as small. The fact that almost all cases are small does not seem to be a mere coincidence. In political terms, small countries may more easily accept the loss of sovereignty in monetary policy matters. In economic terms, the scope for an autonomous monetary policy is limited per se, but dollarisation/euroisation may bring benefits to small countries exactly because it corresponds, in some respects, to enlarging the span of their international economic dimensions.
- *Sustained cases of dollarisation/euroisation are different from recent cases in terms of the preconditions leading to this monetary regime.* In both sustained and also abandoned cases, countries tended to “opt” for dollarisation/euroisation mainly for political reasons as they were either political dependencies or countries closely connected to the respective anchor country. Economic aspects, if at all relevant, were largely related to trade facilitation. In recent cases, by contrast, political relations to the anchor countries did not play a role when opting for the adoption of the euro or the US dollar. Rather, searching for domestic monetary stability in an environment characterised by a severe loss of monetary policy credibility was a major factor determining their choice.
- *Sustained cases of dollarisation/euroisation possess features that are quite different from those of the recent cases.* As mentioned above, sustained (and also abandoned) cases have been characterised by smallness of size and by close political ties – extending as far as political dependency – with the anchor countries. With a few exceptions, politically independent countries opting for this exchange rate regime are in the geographical vicinity of the respective anchor countries. Recent cases of dollarisation/euroisation mainly involve countries that have been striving for political independence and are politically independent from their respective anchor countries. Moreover, they are much larger countries, but share – with the exception of East Timor – the characteristic of being located in the geographical vicinity of the anchor country.
- *In terms of monetary stability, sustained and recent cases of dollarisation/euroisation are characterised by several similarities:*
 - *Dollarisation/euroisation has been associated with low and stable inflation converging to and closely linked to that of the anchor country.* Available evidence suggests that inflation is comparatively low in the sustained cases and has been

falling significantly in those countries that have only recently adopted a foreign currency.

- *Dollarisation/euroisation does not seem to have had a strong impact on fiscal discipline, suggesting that it is not a substitute or sufficient catalyst for good overall economic policies, nor a panacea for economic difficulties.* In many sustained cases public budgets have benefited from fiscal transfers by the respective anchor countries. In the major case of dollarisation abandonment, Liberia, fiscal deterioration formed part of the long road that led to the breakdown of this regime. Finally, it is too early to evaluate the fiscal implications of dollarisation/euroisation in the most recent cases.
- *In terms of integration, sustained cases of dollarisation/euroisation are special, as substantial fiscal transfers from the anchor countries, strong links via tourism and offshore finance have been key features in strengthening economic ties between dollarised/euroised and anchor countries.* In addition to trade, they seem to have been important mechanisms enhancing the sustainability of the exchange rate regime.
- *Most emerging market countries do not seem to be in a position to employ the key integration mechanisms that the sustained cases have been relying on.* This is because the successful implementation of these mechanisms depends to a significant extent on certain rather exogenous conditions, i.e. small size, strong political affiliation with the anchor country, geographical vicinity to the anchor country, tourist attractions, etc.

Two conclusions seem to emerge from these findings:

First, as largely special features allowed the sustained cases of dollarisation/euroisation to pursue specific integration policies, applying their experience to potential new cases is not

straightforward. Thus, irrespective of the possible trade effects of a common currency, the evidence suggests that adopting the US dollar or the euro does not necessarily lead endogenously to a level of integration with the US or the euro area which ensures the long-term sustainability of dollarisation/euroisation. Rather, fiscal transfers from the anchor countries, tourism flows and offshore finance have been key factors behind economic integration. Since most emerging market countries do not seem to be in a position to employ these integration mechanisms, the findings indicate that countries considering the adoption of a foreign currency would be better off ensuring ex ante a high degree of real and financial integration with the anchor country. Recommending dollarisation/euroisation to countries irrespective of their ex ante degree of integration with the potential anchor country appears to carry considerable risk.

Second, as dollarisation/euroisation does not seem to be a straightforward substitute for integration, countries should carefully consider the option of relying on a suitable domestic anchor for monetary policy before opting for unilateral dollarisation/euroisation, despite the latter's alleged merits as a device for achieving macroeconomic stability.

REFERENCES

- Alesina, A. and Barro, R. J. (2000): “Dollarization”, mimeo, <http://post.economics.harvard.edu/faculty/alesina/pdf-papers/dollarization.pdf>.
- Alesina, A. and Barro, R. J. (2001a): “One Country, One Currency?”, in: Alesina, A. and R. J. Barro (eds.), *Currency Unions*, Hoover Institution Press Publication, pp. 11-20.
- Alesina, A. and Barro, R. J. (2001): “Dollarization”, *AEA Papers and Proceedings*, Vol. 91, No. 2, pp. 381-84.
- Altig, D. E. (2002): “Dollarization: What’s in It for the US”, Economic Commentary, Federal Reserve Bank of Cleveland, <http://www.clevelandfed.org/Research/com2002/1015.pdf>.
- Antinolfi, G. and Keister, T. (2000): “Liquidity Crises and Discount Window Lending: Theory and Implications for the Dollarization Debate”, Centro de Investigación Económica, Working Paper 00-02, Mexico.
- Avramovic, D. (1995): “Reconstruction of the Monetary System and Economic Recovery of Yugoslavia”, *Forschungsberichte des Wiener Instituts für Internationale Wirtschaftsvergleiche*, No. 216, Vienna.
- Backé, P. and Wójcik, C. (2003): “Unilateral Euroisation: A Suitable Road Towards Joining the Euro Area For Central and Eastern European EU Accession Countries?” http://www.ee/epbe/papers/12_2002/8.pdf, In: *Alternative Monetary Regimes in Entry to EMU*, Eds. Martti Randveer and Urmas Sepp, Bank of Estonia, 2003, pp. 199-243.
- Baliño, T., Bennet, A. et al. (1999): “Monetary Policy in Dollarized Economies”, IMF Occasional Paper No. 171, Washington DC.
- Banking and Payment Authority of Kosovo (2003a): *Annual Report 2002*, Priština.
- Banking and Payment Authority of Kosovo (2003b): *Monthly Statistical Bulletin*, August 2003, Priština.
- Barro, R. J. and Gordon, D. (1983): “Rules, Discretion and Reputation in a Model of Monetary Policy”, *Journal of Monetary Economics*, Vol. 12, pp. 101-21.
- Barro, R. J. (2001): “Currency Unions”, mimeo.
- Bayoumi T. and Mauro P. (2001): “The Suitability of ASEAN for a Regional Currency Arrangement”, *The World Economy*, Vol. 24 (7), pp. 933-54.
- Beckerman, P. (2001): “Dollarization and Semi-Dollarization in Ecuador”, http://econ.worldbank.org/files/2322_wps2643.pdf.
- Beek, v. F.; Rosales, J. R., Zermeño, M., Randall, R. and Shepherd, J. (2000): “The Eastern Caribbean Currency Union”, IMF Occasional Paper No. 195, Washington DC.
- Begg, D., Eichengreen, B., Halpern, L., von Hagen, J. and Wyplosz, C. (2001): “Sustainable Regimes of Capital Movements in Accession Countries”, Paper presented at the conference on “How to Pave the Road to E(M)U: The Monetary Side of the Enlargement Process (and Its Fiscal Support)”, organised by the Deutsche Bundesbank, Magyar Nemzeti Bank and the Center for Financial Studies, http://www.bundesbank.de/vo/download/konferenzen/konf_011026_27.pdf.
- Bencivenga, V., Huybens, E. and Smith, B. (2001): “Dollarization and the Integration of International Capital Markets: A Contribution to the Theory of Optimal Currency Areas”, *Journal of Money, Credit, and Banking*, Vol. 33 (2), pp. 548-89.

- Berg, A. and Borensztein, E. (2000): “The Pros and Cons of Full Dollarization”, IMF Working Paper WP/00/50, Washington, DC.
- Berg, A., Borensztein, E. and Mauro, P. (2002): “An Evaluation of Monetary Regime Options for Latin America”, IMF Working Paper WP/02/211, Washington, DC.
- Bergsten, C. F. (1999): “Dollarization in Emerging-market Economies and Its Policy Implications for the United States”, Statement before the Joint Hearing of the Subcommittee on Economic Policy and the Subcommittee on International Trade and Finance Committee on Banking, Housing, and Urban Affairs, the United States Senate, Washington, DC., <http://www.iie.com/papers/bergsten0499.htm>.
- Bogetić, Ž (1999): “Official or ‘Full’ Dollarization: Current Experiences and Issues”, mimeo.
- Borga, M. and Yorgason, D. R. (2002): “Direct Investment Positions for 2001: Country and Industry Detail”, *Survey of Current Business*, July, pp. 25–35.
- Bratkowski, A. and Rostowski, J. (2001): “Unilateral Adoption of the Euro by EU Applicant Countries: The Macroeconomic Aspects”, in: Orłowski, L. (ed.), *Transition and Growth in Post-Communist Countries: The 10 Year Experience*, pp. 125-47.
- Broda, C. (2001): “Coping with Terms of Trade Shocks: Pegs versus Floats”, in: Alesina, A. and Barro, R.J. (eds), *Currency Unions*, Hoover Institution Press Publication, pp. 49-56.
- Brücker, H. (2002): “Can International Migration Solve the Problems of European Labour Markets?”, Economic Commission for Europe: Economic Survey of Europe, No. 2, New York and Geneva, pp. 109-42.
- Calderón, C., Chong, A. and Stein, E. (2002): “Trade Intensity and Business Cycle Synchronization: Are Developing Countries any Different?”, Central Bank of Chile, Working Paper No. 195, December 2002.
- Calvo, G. A. (1996): “From Currency Substitution to Dollarization and Beyond: Analytical and Policy Issues”, in: Calvo, G. A.: *Money, Exchange Rates, and Output*, MIT Press, Cambridge, MA, pp. 153-75.
- Calvo, G. A. (1999): “On Dollarization”, University of Maryland, 20 April 1999.
- Calvo, G. A. (2001): “Capital Markets and the Exchange Rate”, *Journal of Money, Credit and Banking*, Vol. 33 (2), Part 2, pp. 312-34.
- Calvo, G. A. and Reinhart, C. M. (2001): “Reflections on Dollarization”, in: Alesina, A. and Barro, R. J. (eds), *Currency Unions*, Hoover Institution Press Publication, pp. 39-48.
- Cashin, P., Céspedes, L. and Sahay, R. (2002): “Keynes, Cocoa and Copper: In Search of Commodity Currencies”, IMF Working Paper WP/02/223, Washington, DC.
- Central Bank of Montenegro (2002): “Speech at the First Anniversary of the CBM on April 3, 2002”, <http://www.cb-mn.org/indexE.htm>.
- Central Bank of Montenegro (2003): “Chief Economist’s Report, January – July 2003”, <http://www.cb-mn.org/indexE.htm>.
- Cordon, M. (2000): “One World, One Currency: Destination or Delusion?”, Remarks, IMF Economic Forum, <http://www.imf.org/external/np/tr/2000/tr001108.htm>.

- Corker, R., Rehm, D. and Kostial, K. (2001): “Kosovo – Macroeconomic Issues and Fiscal Sustainability”, IMF, Washington, DC.
- Dallas, H. and Tavlas, G. S. (2001): “Lessons of the Euro for Dollarization: Analytic and Political Economy Perspectives”, *Journal of Policy Modelling*, Vol. 23, pp. 333-45.
- De Grauwe, P. (2000): *Economics of Monetary Union*, Oxford University Press, Oxford, New York.
- Del Negro, M., Hernández-Delgado, A., Humpage, O. and Huybens, E. (2001): “Introduction: Context, Issues, and Contributions”, *Journal of Money, Credit and Banking*, Vol. 33 (2), Part 2, pp. 303-11.
- Detken, C. and Gaspar, V. (2003): “Maintaining Price Stability under Free-floating: A Fearless Way out of the Corner?”, ECB Working Paper No. 241, Frankfurt am Main.
- Dornbusch, R. and S. Fischer (1993): “Moderate Inflation”, *The World Bank Economic Review*, Vol. 7 (1), pp. 1-44.
- Duisenberg, W. F. (2001): “The ECB and the Accession Process”, Speech to the Frankfurt European Banking Congress at the Alte Oper in Frankfurt am Main, 23 November 2001, <http://www.ecb.int/key/01/sp011123.htm>.
- Easterly, W. and Kraay, A. (2000): “Small States, Small Problems: Income, Growth and Volatility in Small States,” *World Development*, Vol. 28, pp. 2013-27.
- ECB (2002): “Review of the International Role of the Euro”, Frankfurt am Main.
- ECB (2003): “Exchange Rate Regimes for Emerging Market Economies”, ECB Monthly Bulletin, February, pp. 51-62.
- ECOFIN (2000): “Report by the ECOFIN Council on the Exchange-rate Aspects of Enlargement,” submitted to the European Council of Nice.
- Economic Reform Agenda for Montenegro (2003), http://www.seerecon.org/serbiamontenegro/documents/progress_report_montenegro/economic_reform_agenda_montenegro.pdf
- Edwards, S. (2001): “Dollarization and Economic Performance: An Empirical Investigation”, NBER Working Paper No. 8274, Cambridge, MA, <http://www.nber.org/papers/w8274>.
- Edwards, S. and Magendzo, I. I. (2001): “Dollarization, Inflation and Growth”, NBER Working Paper No. 8671, Cambridge MA, <http://www.nber.org/papers/w8671>.
- Edwards, S. and Magendzo, I. I. (2002): “A Currency of One’s Own?”, Paper presented at a conference organised by the Swedish Riksbank and the IIES.
- Edwards, S. (2002): “The Great Exchange Rate Debate after Argentina”, NBER Working Paper No. 9257, Cambridge MA, <http://www.nber.org/papers/w9257>.
- Eichengreen, B. (2000): “When to Dollarize?”, Paper presented at a conference on dollarization hosted by the Federal Reserve Bank of Dallas, 6-7 March 2000.
- European Commission (1990): “One Market, One Money – An Evaluation of the Potential Benefits and Costs of Forming an Economic and Monetary Union”, *European Economy*, No. 44, Brussels.
- European Commission (2002): “The Euro Area in the World Economy – Developments in the First Three Years”, Communication from the Commission, in: *Euro Papers*, No. 46, Brussels, http://europa.eu.int/comm/economy_finance

- EC (2002): “Panama – Country Strategy Paper, 2002-2006”, http://europa.eu.int/comm/external_relations/panama/csp/02_06.pdf.
- EC (2003a): “Kosovo – the European Contribution”, http://europa.eu.int/comm/external_relations/see/fry/kosovo/index.htm.
- EC (2003b): “The EU’s Relation with El Salvador”, http://europa.eu.int/comm/external_relations/el_salvador/intro/
- Financial Stability Forum (2000), “Report of the Working Group on Offshore Centres”, 5 April 2000
- Fischer, S. (1982): “Seigniorage and the Case for a National Money”, *Journal of Political Economy*, Vol. 90 (2), pp. 295-313.
- Fischer, S. (2001a): “Exchange Rate Regimes: Is the Bipolar View Correct?” Distinguished Lecture on Economics in Government, delivered at the meeting of the American Economic Association, New Orleans, 6 January 2001.
- Fischer, S. (2001b): “Ecuador and the International Monetary Fund”, in: Alesina, A. and Barro, R. J. (eds), *Currency Unions*, Hoover Institution Press Publication, pp. 1-10.
- Frankel, J. A. and Rose, A. K. (1998): “The Endogeneity of the Optimum Currency Area Criteria”, *The Economic Journal*, 108 (July), pp. 1009-25.
- Frankel, J. A. (1999): “No Single Currency Regime Is Right for all Countries or at all Times”, NBER Working Paper No. 7338, Cambridge, MA.
- Frankel, J. A. (2000): “Comments on ‘Is Adopting Full Dollarization the Solution?’” by Goldfajn and Olivares.
- Frankel, J. A. and Rose, A. K. (2002): “An Estimate of the Effects of Common Currencies on Trade and Income”, *Quarterly Journal of Economics*, Vol. 67 (2), pp. 437–66.
- Furstenberg, G. M. von (2000): “Dollarization: Needed Monetary Reconditioning or Expropriation?” <http://php.indiana.edu/~vonfurst/G89916.pdf>.
- Giavazzi, F. and A. Giovannini (1988): “The Advantage of Tying One’s Hand: EMS Discipline and Central Bank Credibility”, *European Economic Review*, Vol. 32, pp. 1055-82.
- Glick, R. and Rose, A. K. (2001): “Does a Currency Union Affect Trade? The Time Series Evidence”, <http://haas.berkeley.edu/~arose>
- Gligorov, V. (2001): “The Euro in the Balkans”, The Vienna Institute for International Economic Studies, <http://www.eu-enlargement.org/discuss/attachments/B7CE25FF-4EAA-11D5-A2F6-0050DA76D265.DOC>
- Gosh, A. R., Gulde, A.-M. and Wolf, H. C. (2000): “Currency Boards: More than a Quick Fix?”, *Economic Policy*, Vol. 15 (31), pp. 269-335.
- Goldfajn, J. and G. Olivares (2000), “Is Adopting Full Dollarization the Solution?” Pontificia Universidade Católica do Rio de Janeiro, Departamento de Economica, Texto Para Discussão, No. 416, Rio de Janeiro.
- Goldfajn, I. and G. Olivares (2002), “Full Dollarization: The Case of Panama”, Paper presented as part of the regional study on “The Choice of Currency Arrangements in Latin America and the Caribbean”, LCSPR, Economic Management Group, [http://wbln0018.worldbank.org/lac/lacinfoclient.nsf/0/188de6b8142bb478852569540076f3d1/\\$FILE/dollarpan.pdf](http://wbln0018.worldbank.org/lac/lacinfoclient.nsf/0/188de6b8142bb478852569540076f3d1/$FILE/dollarpan.pdf).

- Gros, D. and Whyte, N. (2000): "Notes on the Economy of Montenegro", CEPS Working Document No. 142, <http://www.ceps.be/Pubs/Gros/Montenegro.html>.
- Halliday, T. (2003): "Migration and Risk in Rural El Salvador", mimeo, <http://www.princeton.edu/~thallida/migration4.pdf>
- Hawkins, J. (2003): "Flexibility and Currency Boards", Paper presented at the Central Bank of Bosnia and Herzegovina's international conference on "The Monetary Policy Role of Currency Boards: History and Practice", Sarajevo, 11-12 April 2003.
- Hausmann, R., Gavin, M., Pages-Serra, C. and Stein, E. (1999): "Financial Turmoil and the Choice of Exchange Rate Regime", Inter-American Development Bank, Working Paper, www.iadb.org/oce/PDF/Financial/turmoil.pdf.
- Hausmann, R. (1999): "Currencies: Should There Be Five or One Hundred and Five?", Paper presented at the seminar on "Alternative Exchange Rate Regimes for the Region", Panama City, http://www.iadb.org/OCE/exchange_rate/5curr.pdf.
- Hausmann, R. and Eichengreen, B. (1999): "Exchange Rates and Financial Fragility", NBER Working Paper No. 7418.
- Hitzelsberger, F., Reuter, J. and Steinle, W. (2001): "Scientific Report on the Mobility of Cross-border Workers within the EEA, Final Report, Summary", commissioned by the European Commission, DG Employment and Social Affairs, http://www.mkw-gmbh.de/download/summary_migration.pdf.
- Honohan, P. and S. O'Connell (1997): "Contrasting Monetary Regimes in Africa", IMF Working Paper No. 97/64, Washington, DC.
- Honohan, P. and Shi, A. (2002): "Deposit Dollarization and the Financial Sector in Emerging Economies", World Bank, Policy Research Working Paper No. 2748, Washington, DC, http://econ.worldbank.org/files/3359_wps2748.pdf.
- Imbs, J. (2003): "Trade, Finance, Specialization and Synchronization", IMF Working Paper WP/03/81, Washington, DC.
- IADB (Inter-American Development Bank) (2001): "Statistical Overview", prepared for the conference on "Remittances as a Development Tool", <http://www.iadb.org/mif/v2/files/Comparativeremittan2.pdf>
- IMF (1998a): "El Salvador: Recent Economic Developments", IMF Staff Country Report No. 98/32, Washington, DC.
- IMF (1998): "Marshall Islands: Recent Economic Developments", IMF Staff Country Report No. 98/85, Washington, DC.
- IMF (1999): "San Marino: Recent Economic Developments", IMF Staff Country Report No. 99/29, Washington, DC.
- IMF (2000): "Offshore Financial Centers", Background Paper, Washington, DC.
- IMF (2000a): "Bosnia and Herzegovina: Selected Issues and Statistical Appendix", IMF Staff Country Report No. 00/77, Washington, DC.
- IMF (2000b): "Liberia: Selected Issues and Statistical Appendix", IMF Staff Country Report No. 00/50, Washington, DC.

- IMF (2000c): “Ecuador: Selected Issues and Statistical Appendix”, IMF Staff Country Report No. 00/125, Washington, DC.
- IMF (2000d): “International Capital Markets – Developments, Prospects and Key Policy Issues”, Washington DC.
- IMF (2000e): “One World, One Currency: Destination or Delusion?”, Economic Forum, November, Washington, DC, <http://www.imf.org/external/np/tr/2000/tr001108.htm>
- IMF (2001a): “Republic of San Marino: 2001 Article IV Consultation”, IMF Country Report No. 01/225, Washington, DC.
- IMF (2001b): “Kosovo – Progress in Institution-building and Economic Policy Challenges Ahead”, Washington, DC.
- IMF (2001c): “Panama: Recent Economic Developments”, IMF Staff Country Report No. 01/41, Washington, DC.
- IMF (2001d): “World Economic Outlook”, October, Washington, DC.
- IMF (2001e): “Federal Republic of Yugoslavia: Membership and Request for Emergency Postconflict Assistance”, IMF Staff Country Report No. 01/07, Washington, DC.
- IMF (2002): “Trade and Financial Integration”, in: *World Economic Outlook*, October, Washington, DC., pp. 108-46.
- IMF (2003): “IMF Concludes 2003 Article IV Consultation with El Salvador”, Public Information Notice No. 03/149, Washington DC.
- ISSP-CEPS (2001 – 2003): “Montenegro Economic Trends”, various issues, Podgorica and Brussels.
- International Financial Institution Advisory Commission (2000): “Report to the US Congress on Reform of Development Banks and the International Financial Regime”, Washington, DC.
- Jadresic, E. (2002): “On a Common Currency for the GCC Countries”, IMF Policy Discussion Paper No. 02/12, Washington, DC.
- Jeanne, O. and Wyplosz, C. (2001): “The International Lender of Last Resort – How Large Is Enough?”, IMF Working Paper WP/01/76, Washington, DC.
- Klauser, P. (2001): “Legal Implications of Currency Boards, “Dollarization” and Similar Arrangements – A Bilateral Monetary Treaty: Switzerland – Liechtenstein”, Paper presented at the BIS/CEMLA/MOCOMILA seminar, Mexico City, 14 February 2002.
- Klein, M. and Neumann, M. J. M. (1990): “Seigniorage: What Is It and Who Gets It?”, *Weltwirtschaftliches Archiv*, Vol. 126 (2), pp. 205–21.
- Klein, M. W. (2002): “Dollarization and Trade”, NBER Working Paper No. 8879, Cambridge, MA.
- Kose, M. A. and Prasad, E. S. (2002), “Thinking Big”, *Finance and Development*, Vol. 39 (4), pp. 38-41.
- Lahiri, A. K. (1991): “Money and Inflation in Yugoslavia”, IMF Working Paper No. 91/50, Washington, DC.
- Lampe, J. R. (2000): “Yugoslavia as History – Twice There Was a Country”, 2nd edition, Cambridge University Press, Cambridge et al.

- Lester, H. (2002): “Monetary Integration in Beautiful Places: Prospects for the Caribbean”, Presentation at the conference on “Exchange Rates, Economic Integration, and the International Economy”, Ryerson University, Toronto, <http://www.ryerson.ca/econ/ConferencePapers/henryMonetary%20Integration%20in%20Beautiful%20Places%20TABLES.pdf>.
- Lockwood, B. (2000): “Discussion”, *Economic Policy*, Vol. 15 (30), pp. 34-35.
- Masson, P. (2000): “One World, One Currency: Destination or Delusion?”, Remarks, IMF Economic Forum, <http://www.imf.org/external/np/tr/2000/tr001108.htm>.
- Maynard, G. (1970): “The Economic Irrelevance of Monetary Independence: The Case of Liberia”. *Journal of Development Studies*, Vol. 6 (2), January, pp. 111-32.
- Mazzaferro, F., Mehl, A., Sturm, M., Thimann, C. and Winkler, A. (2002): “Economic Relations with Regions Neighbouring the Euro Area in the ‘Euro Time Zone’”, ECB Occasional Paper No. 7, Frankfurt am Main.
- McDonough, W. J. (1997): “A U.S. Perspective on Economic and Monetary Union in Europe”, Speech held at the Association of German Mortgage Banks, Frankfurt am Main, 17 November 1997, <http://www.ny.frb.org/pihome/news/speeches/sp971117.html>
- Mehl, A. and Winkler, A. (2003): “Currency Unions over the Long Run: Evidence from a Logit Model on the Role of Financial Transfers, Tourism Dependence and Offshore Finance”, Frankfurt am Main, mimeo.
- Ministry of Finance of the Republic of Montenegro (2002a): “Republic of Montenegro – Monthly Macroeconomic Report, September 2002”, <http://www.gom.cg.yu/eng/minfin/>
- Ministry of Finance of the Republic of Montenegro (2002b): “Republic of Montenegro – Monthly Macroeconomic Report, October 2002”, <http://www.gom.cg.yu/eng/minfin/>
- Ministry of Finance of the Republic of Montenegro (2003a): “Republic of Montenegro – Monthly Macroeconomic Report, December 2002 – January 2003”, <http://www.gom.cg.yu/eng/minfin/>
- Mongelli, F. P. (2002): “‘New’ Views on the Optimum Currency Area Theory: What Is EMU Telling Us?” ECB Working Paper No. 138, Frankfurt am Main.
- Multilateral Investment Fund, Inter-American Development Bank (2001): “Remittances to Latin America and the Caribbean: Comparative Statistics”, <http://www.iadb.org/mif/website/static/en/remit.asp>
- Mussa, M. and Loser, C. M. (1999): “Should Each Country Have Its Own Currency? The Pros and Cons of Full Dollarization”, IMF, Washington, DC.
- Nitsch, V. (2002): “Honey, I Shrunk the Currency Union Effect on Trade”, *World Development*, Vol. 25 (4), pp. 457–74.
- Obstfeld, M. and Rogoff, K. (1996): *Foundations of International Macroeconomics*, MIT Press, Cambridge and London.
- Obstfeld, M. (2000): “One World, One Currency: Destination or Delusion?”, Remarks, IMF Economic Forum, <http://www.imf.org/external/np/tr/2000/tr001108.htm>.
- OECD (2000): “Towards Global Tax Co-operation. Report to the 2000 Ministerial Council Meeting and Recommendations by the Committee on Fiscal Affairs – Progress in Identifying and Eliminating Harmful Tax Practices”, Paris.

- OECD (2002): “Geographical Distribution of Financial Flows to Aid Recipients, 1960-2000”, International Development Statistics, CD-ROM 2002 edition, Paris.
- Orozco, M. (2003): “The Panamanian Diaspora in Perspective”, *The Panama News* (Panama’s English-language Online Newspaper), http://www.thepanamanews.com/pn/v_09/issue_13/business_02.html
- Ostojia, D. (2003): “Interest Rates in Montenegro”, in: *Montenegro Economic Trends*, December 2002, Podgorica, Brussels, pp. 82-84.
- Padoa-Schioppa, T. (2001): “Increased Capital Mobility: A Challenge for the Regulation of Capital Markets”, in: Siebert, H. (ed.), *The World’s New Financial Landscape: Challenges for Economic Policy*, Springer-Verlag, Berlin et al.
- Persson, T. (2001): “Currency Unions and Trade: How Large Is the Treatment Effect?”, *Economic Policy*, Vol. 16 (33), October, pp. 435–48
- Posen, A. (2004): “Dollarization, Currency Blocs and U.S. Policy”, Institute for International Economics, Washington, DC, forthcoming.
- Quah, D. (2000): “Discussion”, *Economic Policy*, Vol. 15 (30), pp. 35-38.
- Rose, A. K. (2000): “One Money, One Market: The Effect of Common Currencies on Trade”, *Economic Policy*, Vol. 15 (30), pp. 9-45.
- Rose, A. K. and Engel, C. (2000a): “Currency Unions and International Integration”, NBER Working Paper No. 7872, September.
- Rose, A. K. and Engel, C. (2000b): “Dollarization and Integration”, mimeo.
- Rose, A. K. (2001): “Currency Unions and Trade: The Effect Is Large”, *Economic Policy*, Vol. 16 (33), October, pp. 449–61
- Rose, A. K. (2002): “Honey, the Currency Union Effect on Trade Hasn’t Blown Up”, *World Development*, Vol. 25 (4), pp. 475–79
- Schobert, F. (2002): “Seigniorage: An Argument for a National Currency?”, CEPS Research Report No. 28, Brussels.
- Schuler, K. and Stein, R. (2000): “The Mack Dollarization Plan: An Analysis”, Paper for the Federal Reserve Bank of Dallas conference on “Dollarization: A Common Currency for the Americas?”, www.dallasfed.org/htm/dallas/pdfs/schuler.pdf
- Solimano, A. (2003): “Workers’ Remittances to the Andean Region: Mechanisms, Costs and Development Impact”, Paper presented at the Multilateral Investment Fund-IDB conference on Remittances and Development, May 2003, Quito, <http://www.iadb.org/mif/V2/files/SolimanoEC.doc>
- Summers, L. (1999): “Distinguished Lecture on Economics in Government: Reflections on Managing Global Integration”, *Journal of Economic Perspectives*, 13 (2), pp. 3-18.
- Summers, L. (2000): “International Financial Crises: Causes, Prevention and Cures”, *American Economic Review*, Vol. 90 (2), pp. 1-16.
- UK Home Office (1998): “Review of Financial Regulation in the Crown Dependencies” (known as “the Edwards Review”), www.official-documents.co.uk

- Worrell, D. (2003): “A Currency Union for the Caribbean”, IMF Working Paper No. 03/35, Washington, DC.
- World Bank (1984): “Liberia: Issues and Options in the Energy Sector”, Sector Report No. 5279, Washington DC.
- World Bank (1995): “Workers in an Integrating World”, *World Development Report 1995*, Washington, DC.
- World Bank (1997): “From Civil War to Civil Society: The Transition from War to Peace in Guatemala and Liberia”, Working Paper, Report No. 18990, Washington, DC.
- World Bank (2000a): “Dollarization”, <http://lnweb18.worldbank.org/external/lac/lac.nsf/bc67c81027cc470e852567d6006c2776/0b9d0b416925900b852568880039df5d>.
- World Bank (2000b): “World Bank Expresses Confidence in El Salvador’s Economic Management”, News Release No. 2000/131/LCR, Washington, DC.
- World Bank (2001): “Finance for Growth, Policy Choices in a Volatile World”, Oxford University Press, Oxford, New York.
- World Bank (2001a): “Countries: Liberia”, <http://www.worldbank.org/afr/lr2.htm>
- World Bank (2003a): “Global Development Finance 2003 - Striving for Stability in Development Finance”, Washington, DC.
- World Bank (2003b): “Program Document of the International Development Association to the Executive Directors on a Proposed Fourth Economic Assistance Grant in the Amount of SDR 3.7 Million (US\$ 5 Million Equivalent) to United Nations Interim Administration Mission in Kosovo for the Benefit of Kosovo”, Washington, DC.
- World Bank (2003c): “Serbia and Montenegro – Recent Progress on Structural Reforms”, Washington, DC.
- World Bank (2003d): “El Salvador – Country Brief”, <http://lnweb18.worldbank.org/external/lac/lac.nsf/Countries/El+Salvador/AF7C51A1F3EC5A3D85256BE5006FD369?OpenDocument>
- World Tourism Organization (2002): “Compendium of Tourism Statistics”, Madrid.

**EUROPEAN CENTRAL BANK
OCCASIONAL PAPER SERIES**

- 1 “The impact of the euro on money and bond markets” by J. Santillán, M. Bayle and C. Thygesen, July 2000.
- 2 “The effective exchange rates of the euro” by L. Buldorini, S. Makrydakis and C. Thimann, February 2002.
- 3 “Estimating the trend of M3 income velocity underlying the reference value for monetary growth” by C. Brand, D. Gerdesmeier and B. Roffia, May 2002.
- 4 “Labour force developments in the euro area since the 1980s” by V. Genre and R. Gómez-Salvador, July 2002.
- 5 “The evolution of clearing and central counterparty services for exchange-traded derivatives in the United States and Europe: a comparison” by D. Russo, T. L. Hart and A. Schönenberger, September 2002.
- 6 “Banking integration in the euro area” by I. Cabral, F. Dierick and J. Vesala, December 2002.
- 7 “Economic relations with regions neighbouring the euro area in the ‘Euro Time Zone’” by F. Mazzaferro, A. Mehl, M. Sturm, C. Thimann and A. Winkler, December 2002.
- 8 “An introduction to the ECB’s survey of professional forecasters” by J. A. Garcia, September 2003.
- 9 “Fiscal adjustment in 1991-2002: stylised facts and policy implications” by M. G. Briotti, February 2004.
- 10 “The acceding countries’ strategies towards ERM II and the adoption of the euro: an analytical review” by a staff team led by P. Backé and C. Thimann and including O. Arratibel, O. Calvo-Gonzalez, A. Mehl and C. Nerlich, February 2004.
- 11 “Official dollarisation/euroisation: motives, features and policy implications of current cases” by A. Winkler, F. Mazzaferro, C. Nerlich and C. Thimann, February 2004.

