

## “Currency Blocs and Market Integration: Implications for Trade and Business Cycle Correlations”

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### ***Summary***

*Recent econometric estimates suggest that currency unions have far greater effects on trade patterns than previously believed. Since currency unions are good for trade, and trade is good for growth, that is one major argument in favor of EMU. If there were evidence that the boost to trade within EMU was likely to come in part at the expense of trade with outsiders, that would imply something stronger, for a neighbor such as the United Kingdom: that life outside EMU would get progressively less attractive in the future. But there is no such evidence, either for currency unions in general (according to Frankel-Rose) or for the first three years of EMU in particular (according to Micco, Stein, and Ordoñez). Furthermore, there are the usual countervailing arguments for retaining monetary independence, particularly the famous asymmetric shocks. One possible argument for waiting is that UK trade with euroland is still increasing, probably due to lagged effects of joining the EU and the Single Market initiative. Estimates suggest that the growing trade links in turn lead to growing cyclical correlation. The implication is that the UK may better qualify for the optimum currency area criteria in the future than in the past. On the other hand, if, as a result of waiting to enter, London loses to Frankfurt its position as the leading financial center in the European time zone, that loss may not be readily recoverable in the future.*

That the creation of a common currency could alter patterns of international trade was one of the motivations of the architects of EMU. Nevertheless, it is only relatively recently that academic researchers have found convincing evidence that this is a major effect. This note will explain what we have learned from recent research on: (1) the effect of common currencies on trade among members, (2) the further implications for long-run growth rates and cyclical correlations, and (3) effect of common currencies on *non-members*. It concludes with: (4) thoughts on the bottom line for the United Kingdom and the prospects if it does not soon enter EMU.

### **(1) The effect of common currencies on trade among members**

Until relatively recently, economists had been skeptical whether a reduction in exchange rate variability gives a substantial boost to trade. The skepticism had both theoretical and empirical grounds. Theoretically, the argument was that importers and exporters can hedge exchange rate uncertainty. Empirically, econometric studies found little evidence that exchange rate variability had an adverse effect on trade.

The problem with the theoretical argument, however, is that forward and futures markets (1) don't exist, for most trading partners and for most longer-term horizons, (2) come with transactions costs, (3) come with risk premia, which drive a wedge between the forward rate and the expected future spot rate. The problem with the empirical evidence was that it was mostly based on time series, where it was difficult to sort out other influences on trade, and was mostly based on large industrialized countries.<sup>1</sup> When smaller countries were included in cross-section studies, some effects started to show up. This was particularly true when looking at studies of bilateral trade. Data on trade among 100 countries offer 9900 observations for each year (=100x99). That is a lot of data, which allows the researcher to control for such other important determinants of trade as country size, bilateral distance, common borders, and so on.<sup>2</sup>

The most important discovery was made by Andrew Rose, when he looked at a data set that included many very small countries and dependencies. He found a statistically significant effect of bilateral exchange rate variability on bilateral trade. But, beyond that, he found a large effect of common currencies on bilateral trade. Enough small countries use some other country's currency (most of them either the US dollar, French franc, pound sterling, Australian or New Zealand dollar, or South African rand) that it was possible to isolate the effect. His estimate, which by now he has replicated in various forms many times, was that a common currency triples trade among members.

A threefold effect is very large, and the finding was, understandably, greeted with a lot of skepticism. There are four grounds for skepticism. First, the statistical association between currency links and trade links might not be the result of causation running from currencies to trade, but might arise instead because both sorts of links are caused by a third factor, such as colonial history, remaining political links,

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<sup>1</sup> Surveys of the literature are included in Edison and Melvin (1990) and Goldstein (1995).

<sup>2</sup> The gravity model is comprehensively explained in Frankel (1997). Applications to Europe include Havrylyshyn and Pritchett (1991), Hamilton and Winters (1992), Brada (1993), and Winters (1997).

complementarity of endowments, accidents of history and so forth. Second, one could not infer from cross-section evidence what would be the effect in real time of countries adopting a common currency. Third, the estimated effect on trade (and on income, to be discussed in the next section) just seems too big to be believable. Fourth, Rose's evidence came entirely from countries that were either small (e.g., Ireland, Panama, or African members of the CFA franc zone) or very small (e.g., Falkland Islands, Gibraltar, and Saint Helena), and so it was not clear that the estimates could be extended to larger countries. While each of these four arguments has some validity, to each there is a better response than one might expect.

First, regarding the time dimension, subsequent research on time series data finds that a substantial share of the tripling that Rose had estimated from the cross-section data (which is presumably the long-run effect) shows up within a few decades of a change. Using a 1948-1997 sample that includes a number of countries that left currency unions during that period, Glick and Rose (2001) find that trade among the members was twice as high in the currency union period as afterwards. This suggests that roughly two thirds of the tripling effect may be reached within three decades of a change in regime. (This assumes symmetry with respect to entry and exit.)

Second, regarding the possible influence of third factors, Rose has done a thorough job of controlling for common languages, colonial history, and remaining political links. The large estimated effect of a common currency remains. While it seems very possible that there are other third factors (e.g., accidents of history) that influence both currency choices and trade links, the various extensions of the original research – these robustness tests together with the time series results -- reduce the force of this critique.<sup>3</sup>

Third, regarding the surprisingly large magnitude of the estimates, it is important to take account of something else that we have learned in recent years, which is also surprising in light of all one hears about globalization. That is home country bias. A large number of studies have found that people trade with their fellow citizens far more easily than with those living in other countries. This finding emerges whether one looks at the volume of trade flows between locations, or at the ability of arbitrage to keep prices in line across locations. It holds even when one controls for the effects of distance, trade barriers, and linguistic, social and historical differences. It holds even between the US and Canada. The best-known finding is that Canadian provinces are 20 times more prone to trade with each other than with US states.<sup>4</sup> This estimate was cut roughly in half after the Canadian-US FTA went into effect,<sup>5</sup> and has been cut further when

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<sup>3</sup> Many of the critiques of the Rose results, after pointing out the endogeneity problem or one of the other legitimate problems, offer an alleged way to address it, and then report that the currency union effect disappears. See Rose (2001) for a reply to one, and his website (<http://faculty.haas.berkeley.edu/arose/RecRes.htm#CUTrade>) for more. My own view is that many of these responses in effect throw out most of the data, one way or another, in the name of addressing the (correctly identified) issues of endogeneity or country size. Since the finding of statistical significance only arose when Rose put together a large enough data set for it to show up, there is little information gained in reducing the data set sharply and then noticing the loss in statistical significance.

<sup>4</sup> McCallum [1995].

<sup>5</sup> Helliwell [1998].

controlling for a few more factors.<sup>6</sup> Nevertheless, a substantial bias remains even in this case, roughly on the order of threefold, and the bias must certainly be higher for other country pairs.<sup>7</sup> Similarly, studies of the ability of arbitrage to narrow price differentials find that crossing the US-Canadian border discourages trade more than does traveling the entire length of Canada,<sup>8</sup> and that the barrier is even greater for other pairs of countries.<sup>9</sup> What can explain these remarkable findings of home bias in quantity and price data? The difference in currencies is not an implausible explanation, given the paucity of alternative candidates.<sup>10</sup>

Regarding the applicability of the results to large countries, we will not know for sure until enough time passes to yield a verdict on the EMU experiment. It would seem plausible that very small geographical units (the Gibaltars) are so dependent on international trade -- due either to inadequate scale of the domestic market or to insufficiently diversified factors of production -- that measures such as currency unions or free trade areas would have a larger pay-off for them than for larger, more self-sufficient, economies. But there are two counterarguments. First, Rose has tested whether there are any non-linearities among his currency union sample, e.g., any difference between the effects among units that are merely small and those that are very small. He found no significant difference. Second, the home country bias seems to be linear, regardless of the size of the country. That is, if two small units join together, thereby doubling the size of the economy, the ratio of trade to GDP falls -- i.e., home country bias increases -- as much (roughly .2, in log form) as when two large units join together.<sup>11</sup> To the extent that currencies explain this, the effect does not seem to be limited to small countries.

Finally, we now have three years of data since EMU went into effect in January 1999. Econometricians are beginning to update the gravity estimates to see what can be learned from the record so far. Micco, Stein, and Ordoñez (2002a) find that for pairs of the 12 countries that joined EMU, trade has increased by a significant 12 to 19 percent (depending whether the data set is limited to European countries, or a larger set of 22 developed countries). The magnitude is less than in the Rose studies. As they quite reasonably conclude, (p.15) "However, the effect of EMU on trade is significant, and economically important, particularly if we consider that our sample only covers the first three years of the EMU, a period in which the Euro did not even circulate."

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<sup>6</sup> Wei (1996).

<sup>7</sup> Using the same gravity methodology, Nitsch (1997) finds that intra-national trade within European countries is about seven times as high as trade with EU partner countries of similar size and distance.

<sup>8</sup> Engel and Rogers (1998).

<sup>9</sup> Parsley and Wei (2000, 2001).

<sup>10</sup> The currency union variable ranks in magnitude and explanatory power roughly equal with the FTA variable, behind the colonial relationship, and ahead of common language and the residual political union effect. This claim is confirmed by Rose and van Wincoop [2001], who estimate that half the typical border barrier is due to different sovereign monies.

<sup>11</sup> Also, thinking ahead to estimates of the effects on growth discussed in section 2, the long-run effect of an increase trade on income seems to be the same for large countries and small. Frankel and Rose (2002).

Other evidence confirms the finding. Bun and Klaasen (2002) also update gravity estimates, and find that “the euro has significantly increased trade, with an effect of 4% in the first year” and a long-run effect projected to be about 40%. Takata (2002, p. 11) calculates that the UK-euroland intensity of trade rose gradually in the early 1990s, and sharply in 1999-2000. (Trade intensities are more rudimentary estimates than full gravity models, but are much easier to compute and usually give similar answers regarding changes over time.) Studies with price data so far have been confirming that EMU is having an effect in the markets of member countries.<sup>12</sup> It seems clear that the trade effects of monetary union are not limited to small countries.

## (2) The further implications for long-run growth rates and cyclical correlations

Boosting trade is of interest primarily as a determinant of economic growth. (Non-economic motivations for encouraging trade, such as binding countries together politically, are outside the scope of this study.) There are three sorts of ways that an increase in trade among members of a group feed into the advisability of opting for a common currency.

**Table 1: The Effect of Currency Union Membership on Aggregate Trade/GDP**

<b>Currency Union</b>	.12 (.02)	.19 (.03)
<b>Political Union</b>	.12 (.03)	.41 (.05)
<b>Log Real GDP per Capita</b>	.12 (.01)	.06 (.01)
<b>Log Population</b>	-.19 (.01)	-.17 (.01)
<b>Log Land Area</b>	-.06 (.01)	-.08 (.01)
<b>Island</b>	-.10 (.02)	-.02 (.03)
<b>Landlocked</b>	-.04 (.02)	.01 (.03)
<b>Remoteness</b>	-.15 (.03)	.06 (.05)
<b>Log RoW Real GDP</b>	.37 (.02)	.19 (.04)
<b>Log Import Tariff rate</b>		-.06 (.01)
<b>Number of Observations</b>	4236	1777
<b>R<sup>2</sup></b>	.57	.60
<b>RMSE</b>	.416	.396

*Regressand is log of trade/GDP, from Penn World Table.*

<sup>12</sup> Looking at price data across pairs of European cities, Rogers (2001, 2002) finds evidence of convergence in the 1990s. In the European auto market, Goldberg and Verboven (2001) find gradual convergence over the period 1970-2000.

*(Robust standard errors recorded in parentheses.)*

*Source: Frankel and Rose "Estimating the Effect of Currency Unions on Trade and Output," NBER Working Paper No. 7857, August 2000, Table A2.*

The first factor has to do with the long-run determination of growth: currency unions raise openness, and openness raises real income. Frankel and Rose (2002) combine estimates of the effects of a common currency on trade and the follow-on effects of higher trade on GDP, to derive estimates of the effects of common currencies on GDP. Table 1 shows that membership in a typical currency union raises the ratio of trade to GDP by an estimated 12 to 19 percentage points. But joining a currency union with particularly important trading partners (e.g., large and close neighbors) can have a larger impact. For example, if the UK were to join EMU and thereby triple trade with euro-countries, its ratio of total trade to GDP would eventually rise an estimated .62 (from .58 to 1.2). Once the increase in trade was realized, the estimated effect would be to raise real income by 20 percent over the subsequent 20 years, quite a substantial effect, if it is believed.

The second and third factors have to do with the theory of optimum currency areas, which weighs the advantages of fixed exchange rates versus the advantages of floating.<sup>13</sup> One factor concerns an advantage of a common currency from the viewpoint of exporters and importers, and one the advantage of monetary independence. The fact that the elimination of exchange rate uncertainty makes life easier for importers and exporters will be more important, the higher is the share of trade in GDP, even if the level of trade does not change. For this reason, McKinnon (1963) argued that a key factor determining the advisability of fixing the exchange rate is the ratio of tradable goods to GDP. One implication is that if trade among the members of the EU is increasing over time, then they will satisfy the optimum currency area criteria more strongly in the future than in the past. A related implication is that even if a country does not satisfy the optimum currency area criteria *ex ante*, if it goes ahead and joins a currency area anyway, and enough time passes to increase trade with other members substantially as a result of the common currency, then again it may satisfy the optimum currency area criteria *ex post*. Frankel and Rose (1998) call this the endogeneity of the optimum currency area criterion.

The last factor concerns cyclical fluctuations. What is the attraction of retaining an independent currency in the first place? The most important advantage of flexible exchange rates is to retain the ability to respond to cyclical downturns by means of monetary policy -- a reduction in real interest rates, or a depreciation of the currency or both -- and to cyclical booms in the opposite direction. But this advantage is less important if the domestic economy is highly correlated with the other countries in a prospective currency area (i.e., if shocks are usually "symmetric"), because the changes in monetary policy that the other member countries choose will also be appropriate for the domestic economy. But cyclical correlations are not timeless unchanging

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<sup>13</sup> Mundell (1961) coined the phrase and Tavlas (1992) surveyed the literature.

parameters. If trade among members of a currency area increases, then the cyclical correlation is likely to change as well.

Artis and Zhang (1995) find that most European countries' incomes were more highly correlated with the U.S. during 1961-79, but (with the exception of the UK) became more highly correlated with Germany after joining the ERM.<sup>14</sup> Frankel and Rose (1998) find on a broad cross-section of countries that when a reduction in bilateral exchange rate variability encourages bilateral trade, it also raises the bilateral cyclical correlation. That a country is more likely to be suited to join a monetary union *ex post* than *ex ante* is an implication of the cyclical correlation having gone up in the meantime, another instance of the endogeneity of the optimum currency area criteria.<sup>15</sup>

These findings contradict a surmise of Eichengreen (1992, pp.14-16), Bayoumi and Eichengreen (1994, pp.4-5), and Paul Krugman (1993). These authors suggest that, because a higher trade level would lead to greater specialization, it would also lead to lower synchronization of shocks.<sup>16</sup> Their view that specialization works against common currencies, and that diversification of the economy works in favor of it, goes back to Kenen (1969).

Consistent with the Frankel and Rose (1998) findings, however, Rockoff (2000) argues that it took 150 years before the United States met the criteria for an Optimum Currency Area, asymmetric regional shocks having posed severe problems for much of its history. Kim (1997) finds that regional specialization within the United States increased in the 19<sup>th</sup> and early 20<sup>th</sup> centuries, and diminished somewhat thereafter, though remaining higher than within Europe. Clark and van Wincoop (1999) find that the lack of cyclical synchronization within Europe, relative to within the United States, is explained by the lower level of internal trade (and to a lesser extent the higher degree of sectoral specialization). Evidence in Honkapohja and Pikkarainen (1992) also supports the idea that countries with a high degree of specialization are more likely to find it desirable to peg their exchange rate.

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<sup>14</sup> Eichengreen pointed out that such correlations may be the result of the loss of monetary independence, rather than of the increased trade.

<sup>15</sup> Fidrmuc (2001) extends the results to take specific account of intra-industry trade. But Imbs (1999) claims that trade is not, after all, a big determinant of cyclical correlations. According to Kalemli-Ozcan, Sorensen, and Yosha (1999), the degree of risk-sharing via integrated capital markets is the interesting determinant of industrial specialization.

<sup>16</sup> "Theory and the experience of the US suggest that EC regions will become increasingly specialized, and that as they become more specialized they will become more vulnerable to region-specific shocks. Regions will, of course, be unable to respond with counter-cyclical monetary or exchange rate policy" (Krugman, 1993, p.260). Hughes Hallett and Piscitelli (1999) call this "the traditional view" (and add some modeling of demand-driven transmission which had otherwise been missing from this debate). The No Campaign (2002, p. 40) is among those asserting that EMU is likely to generate a degree of specialization that undermines the insulation against shocks necessary for a common currency.

### **(3) The effect of common currencies on *non-members***

The remit of the Commission on The UK Outside the Euro is not the prospective effect on the United Kingdom if it were to join EMU, but rather the prospective effect if it stays out. Presumably this does not mean the effect of staying out relative to going in, but rather the effect relative to the current situation, to the past situation, or to a counterfactual where EMU had not taken place.

In this light, the most relevant among the trade issues -- the subject of this submission -- is the effect of the formation of a currency area on trade *between members and non-members*. The natural fear is trade-diversion: that expanded trade within the currency union (the prediction from the literature surveyed in section 1) would come at the expense of trade with countries outside it, for whom the status quo, however satisfactory, ceases to be an option. There is an analogy with fears of trade diversion resulting from regional trading arrangements such as the European Union: that the enhanced trade among the members will come at least partly at the expense of non-members. Trade diversion is of concern for two reasons. First, in a world that breaks up into currency blocs or trade blocs, trade diversion could mean that everyone is worse off. Second, if a country watches some of its most important trading partners form a bloc, but it remains outside, then it can be damaged particularly by the formation of the bloc. In a model of trade in imperfect substitutes, the negative effect takes the form of an adverse shift in the terms of trade.

Do trade blocs such as EU and currency blocs such as EMU tend to be trade-diverting? For the EU and other Free Trade Areas, the literature is large and inconclusive. Frankel (1997, p. 108-109) summarizes the early literature, as well as a welter of gravity-based estimates from the 1990s. While some estimates show trade diversion, it is at least as common to find that when European countries promote trade among themselves, they also to some extent increase their trade with outsiders. Thus I have found little evidence, overall, of a “fortress Europe” policy. The same is true of NAFTA and other free trade areas. Some of the political economy factors that give rise to regional arrangements also tend to support trade liberalization more generally.<sup>17</sup> Others, however, have sometimes found trade-diversion on the part of the EU and some other FTAs.

For currency blocs, there are only a few relevant studies. For broad currency groupings (EMS bloc / dollar bloc / yen bloc) the results are inconclusive.<sup>18</sup> For small but genuine currency unions, Frankel and Rose (2002) emphatically reject trade

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<sup>17</sup> The theoretical model in Frankel (1997) uses geography to operationalize the question of trade creation versus trade diversion. Building on the Krugman (1991a, b) notion of a natural trading bloc, I find that the degree of trade regionalization in the world today is in danger of exceeding the natural or optimal level (which I call going supernatural), but is not there yet. Successful creation of a common currency should probably be viewed as the elimination of an intra-continental deadweight cost to trade, analogous to a reduction in intra-continental transportation costs. As such, it is more likely to enhance economic welfare than is creation of a free trade area. The book reviews many related issues and writings on regional trading arrangements.)

<sup>18</sup> Frankel (1995a, b) estimates the effects of such currency blocs on trade patterns.



diversion, a reassuring finding. For the case of European monetary integration, most studies predate EMU.

Table 2:  
Effects of EMU on changes in trade patterns, as estimated by Micco, Stein & Ordoñez

<b>Dependent Variable: Log of Bilateral trade</b>	<b>Change:1992-2001</b>	
	<i>among developed countries</i>	
<b>Formal EMU Dummy</b>	<b>0.178</b>	<b>0.352</b>
	<b>(11.10)***</b>	<b>(7.79)***</b>
<b>UK-Formal EMU</b>	<b>0.031</b>	<b>0.115</b>
	<b>(1.26)</b>	<b>(1.77)*</b>
Log of GDP	2.016	0.768
	<b>(6.72)***</b>	<b>(87.24)***</b>
Log of GDP per capita	-1.530	0.309
	<b>(4.85)***</b>	<b>(8.54)***</b>
Free Trade Agreement	0.025	0.146
	<b>(1.17)</b>	<b>(2.59)***</b>
European Union	0.037	0.214
	<b>(1.85)*</b>	<b>(4.20)***</b>
Landlocked		-0.216
		<b>(5.86)***</b>
Island		-0.050
		<b>(1.07)</b>
Log of Distance		-0.645
		<b>(29.61)***</b>
Surface Product		-0.004
		<b>(0.47)</b>
Contiguity		0.470
		<b>(10.06)***</b>
Common Language		1.125
		<b>(17.57)***</b>
Year Dummy	Yes	Yes
Country Pair Dummy	Yes	2310
Observations	2310	
R-squared		<b>0.93</b>

Robust t-statistics in parentheses

\* significant at 10%; \*\* significant at 5%; \*\*\* significant at 1%

Source: Micco, Stein and Ordoñez (2002b)

I only know of one team of researchers who have up-to-date estimates that can help us answer the question whether EMU has been diverting trade away from the United Kingdom since it went into operation: Micco, Stein, and Ordoñez (2002b). In their pure cross-section estimates, they find that, while EMU promotes trade among members, there is no diversion away from the UK. Indeed the estimated effect on UK-EMU trade is positive in the years 1999-2001, though not significant statistically. One might see evidence for trade-diversion from the fact that the same coefficient is estimated to be larger and statistically significant in earlier years: peaking at .5 (with a t-statistic of 4.1) in 1993, and then declining steadily in magnitude and significance until reaching an insignificant 0.2 in 2000-2001. Some unidentified factor must have been boosting trade across the channel before 1998. But the most obvious factor is precisely anticipation of possible monetary integration between the UK and the Continent. FTAs and monetary unions tend to affect trade patterns while the plans are underway, well before they formally take effect. The intra-EMU effect (independent of an EU effect) is significant from 1986. It declines a bit after 1993, perhaps in reaction to the 1992-93 crises in the Exchange Rate Mechanism, but then jumps in 1999. A likely explanation for the decline in the UK-EMU coefficient during the period 1993-2001 is the steadily diminishing odds that Britain would be a founding member. Notably, 1998 is the first year in which the positive UK-EMU effect is not statistically significant. It is hard to make a case for trade-diversion from these results.

Confirming the conclusion that EMU has not diverted trade away from the UK are Micco, Stein, and Ordoñez (2002b)'s estimates of "differences in differences." This technique measures how differences among bilateral trading partners changed between 1992 and 2001. The estimates for the larger set of developed countries are reported in Table 2, with the authors' kind permission. Here the boost to intra-EMU trade is estimated at 18 to 35 percent (depending on whether one uses country-pair dummies, or instead conditions on the standard gravity variables). Crucially for present purposes, the coefficient on UK-EMU trade is of a fairly low level of statistical significance, and positive in sign. There is no evidence of trade diversion.

#### **(4) Thoughts on the bottom line for the United Kingdom**

The first of the five tests for British entry to EMU officially laid out by Chancellor Gordon Brown includes what we have called cyclical correlation, synchronization, or symmetric shocks: "Are business cycles...compatible so that we and others could live comfortably with euro interest rates on a permanent basis?" Takata (2002) surveys ten studies of UK cyclical correlations. All ten find that the correlation between the UK and European (or German) economies has been somewhat lower than either the intra-Europe correlation or the UK-US correlation. This suggests that the UK does not currently meet the test for joining.

Most of those studies are based on data from the 1960s, 70s and 80s, however. Trade patterns are changing. Intra-European trade has been rising,<sup>19</sup> and with it the

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<sup>19</sup> As documented in the gravity literature already described. Wei (1996) finds that the home bias in a typical EC member, relative to imports from other member countries, fell by half during 1982-94.

intra-Europe synchronization of business cycles. Angeloni and Delola (1999) find that the UK-Germany GDP correlation was sharply higher during 1993-97 than previously (though still lower than the France-Germany correlation)-- perhaps as a lagged result of Britain's entry to the European Economic Community and of the Single Market initiative.

The author's feeling is that whether EMU proves ultimately beneficial or not depends largely on whether Europe happens to experience a large asymmetric shock within the next few decades. To stylize history: large global shocks happen about once a decade. The 1970s saw large upward increases in oil prices – which, in conjunction with subsequent Thatcherite monetary policy, implied a temporary real appreciation for the pound relative to continental Europe. The early 1980s saw Reaganomics in the US – a monetary-fiscal mix that implied a temporary real appreciation of the dollar (1980-85), but equally so against the UK and the continent. The early 1990s saw a German spending boom associated with reunification, which implied a temporary real appreciation of the mark against the pound and other European currencies. It is impossible to say what will be the important shocks of the future (that is what makes them shocks) -- perhaps eastern enlargement of the EU, or some aspect of political developments in the Middle East. If there are no major shocks in the next few decades that affect the members of euroland asymmetrically, EMU may be “home free.” By then the trade links will be strong enough that a seriously disruptive asymmetric shock is unlikely. In the meantime, the members can derive benefits such as those discussed in sections 1 and 2 above.

What does this imply for the UK, if it rejects or delays entry? If there were evidence of trade diversion from monetary union, it would suggest that Britain would be worse off remaining outside of EMU than it would be if EMU had never happened. Fortunately, there is not such evidence. The Frankel and Rose (2002) estimates of currency union effects reject the hypothesis of trade-diversion in general. The updated-to-2001 results of Micco, Stein, and Ordoñez (2002b) find the same with respect to UK trade UK in particular. If Britain finds the short-term disadvantages of joining to outweigh the advantages, there is no reason to consider the current situation unsustainable. This leaves aside the important issue of whether the business of the City might be permanently damaged by the rise of a rival financial center on the continent, if Britain stays out.

Meanwhile, UK trade links with euroland have risen over the last few decades anyway, and may still be rising. The reason may be the effects of EU membership, which develop with long lags.<sup>20</sup> More precisely, the events that may be driving the gradual shift in trade patterns are as follows: the UK joining the European Economic Community in 1973, the expansion of the membership of the EEC 9 to the 12 in 1981-86, the Single Market initiative which came into effect in 1992, and the further expansion to the EU 15 in 1995. Along with trade links, cyclical correlations rise. The implication is that the UK may meet the optimum currency area criterion for joining the euro-12 better in the future than in the past. Another factor working in favor of waiting is the opportunity to learn by watching the experiment unfold in euroland (and – more unpredictably – among any additional joiners).

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<sup>20</sup> The lags appear in the gravity estimates, e.g., Eichengreen and Irwin (1998).

A final consideration has to do with popular opinion and the famous democratic deficit. After a country gives up monetary independence, in the event of a shock the difference between a moderate recession and a serious crisis could well be whether it is possible to explain to the public that this is what they signed up for and to make the case for difficult short-term adjustment. This will be far easier to do if the public voted to join the monetary union in the first place. If the British public does not yet feel sufficiently “European” to want to join EMU voluntarily, it may be unwise for political elites to force it through at this stage.

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