2

Underlying Determinants of Global Currency Status

Financial Network Effects and Deepening

KRISTIN J. FORBES

Many factors determine global currency usage. This paper focuses on one of them: demand for a country's financial liabilities due to financial deepening and liquidity. This focus does not imply that financial-market development is the only factor determining global currency usage, but, as I argue in this paper, it has been one of the most important determinants of demand for the dollar and will play an important role in determining the future of the euro. This topic is closely related to the financial crisis currently unwinding around the globe. What happens to European financial markets, and especially how European policymakers support and regulate their markets in response to the financial crisis, will be critical in determining the long-term demand for European investments and the euro.

I first describe the insatiable demand for US liabilities over the past few years. Second, I talk about the determinants of foreign investment in the United States, drawing from theoretical and empirical studies. Finally, I draw lessons from demand for European liabilities and the euro and link it to the current financial crisis.

Insatiable Foreign Demand for US Liabilities

It is well known that there has been an insatiable demand for US liabilities over the last few years. The statistics are so astounding that they merit a quick review. In 2007, as the US financial crisis was in its early stages,

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the United States attracted $2.1 trillion of new capital flows from abroad.[1] This $2.1 trillion does not include any new sales; that is $2.1 trillion of new money coming into the United States. These capital inflows funded the US current account deficit plus US capital outflows. Moreover, this was not a one-year event. From 2003 through 2007, $7.8 trillion of new foreign investment flowed into the United States. This is over $5 billion a day of foreign capital purchasing US liabilities—including equities, government bonds, corporate bonds, foreign direct investment (FDI), and bank loans. Even after the subprime crisis started to unfold, the money kept "rolling in" to the United States, albeit at a slower pace. For example, in the first quarter of 2008, the United States attracted $411 billion of new capital flows, compared with $693 billion in the first quarter of 2007. Unfortunately, data for the last few months of 2008, as the financial crisis deepened, are not yet available, but the recent strengthening of the dollar suggests that foreign demand for US financial liabilities has remained strong. This large and sustained demand for US financial liabilities has been a key support for the US dollar.

Where is this $2.1 trillion of foreign capital flows into the United States going? Figure 2.1 illustrates the use of foreign capital inflows from 2003 to 2007. Some commentators incorrectly imply that most of these capital inflows are used to purchase US treasuries. In fact, only 16 percent of total capital inflows (including private- and official-sector flows) are used to purchase US treasuries. More important is the 22 percent of capital inflows used to purchase corporate bonds and 17 percent for FDI and equities. Therefore, foreign capital flows into the United States represent a diverse range of investments—not primarily US treasuries.

Not surprisingly, these massive capital inflows of over $5 billion a day into the United States have given foreigners a substantial ownership share of major US financial classes. As shown in table 2.1, foreigners now own 11 percent of US equities, 24 percent of US corporate bonds, and 57 percent of marketable US treasuries. These ownership shares have increased rapidly over the past few years and further reflect the importance of foreign demand for US liabilities in supporting the dollar.

Determinants of Foreign Demand for US Liabilities: The Evidence

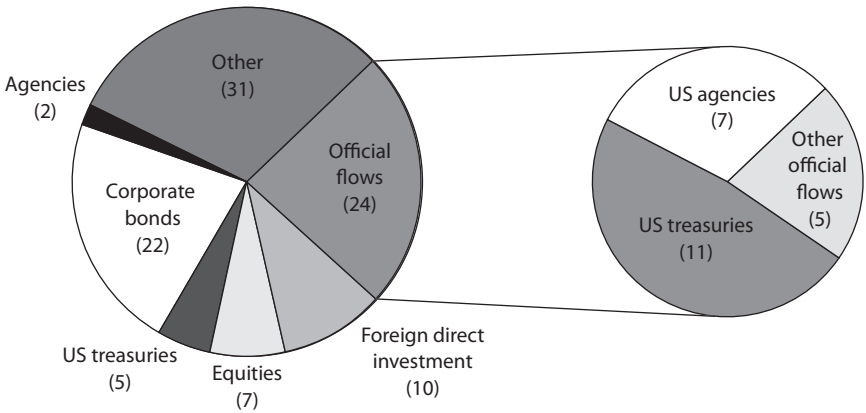
Why are foreigners willing to invest over $5 billion a day in the United States? There are several possible explanations, and this section briefly explores them one at a time.[2]

One potential reason is that foreigners earn high returns on their US

1. All statistics in this paragraph are from the Bureau of Economic Analysis website, www.bea.gov (accessed in October 2008).

2. See Forbes (2007 or 2008) for more details on these explanations.

Figure 2.1 Composition of gross foreign capital inflows, 2003–07
(percent)



Source: Bureau of Economic Analysis, *Survey of Current Business*, July 2008, US international transactions table.

Table 2.1 Share of foreign holdings of US liabilities, as of June 2007

Class	Total outstanding US liabilities (billions of dollars)	Percent foreign-owned
Equity	27,768	11.3
US treasuries	3,454	56.9
Agencies	6,105	21.4
Corporate debt	11,391	24.0
Total	48,718	18.8

Note: US treasuries are marketable treasuries and exclude central bank holdings.

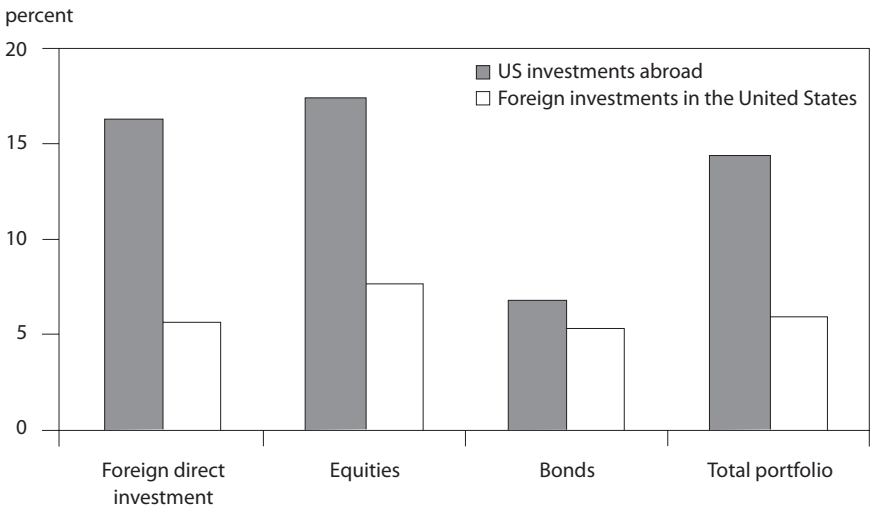
Source: US Treasury Department, June 2008.

investments. This is one of the standard talking points of US Treasury secretaries. For example, Secretary Henry Paulson Jr. argued: "We have deep and liquid capital markets and a growing economy that provides opportunities for foreign investors to earn an attractive return on their capital."[3] His predecessor, Secretary John Snow, stated: "Today we are in a situation where sound, growth-enhancing policies in the United States have made it an extremely attractive place to invest."[4] These arguments are important

3. Prepared remarks before the Economic Club of Washington, March 1, 2007, available at www.treas.gov.

4. Prepared remarks at Chatham House, the Royal Institute of International Affairs, London, November 17, 2004, available at www.treas.gov.

Figure 2.2 Average annual returns on private-sector investment, 2002–06



Source: Bureau of Economic Analysis, *Survey of Current Business,* July 2008, US international transactions table.

because the academic literature provides evidence that investors chase returns (see Bohn and Tesar 1996, Sirri and Tufano 1998). If foreigners were investing in the United States and earning high returns, then combined with the evidence that investors chase returns, this would suggest that foreigners would continue to invest in the United States.

Is this the case?[5] The returns on foreign investment in the United States can be calculated in a number of ways, but no matter which statistics you calculate, the findings are similar to those in figure 2.2. The figure focuses only on private-sector investment—excluding "official-sector" investment (i.e., governments) as governments may place less emphasis on returns than the private sector when making investment decisions. For each asset class, the white bars are the returns that Americans earned when investing abroad from 2002 to 2006 (the last five years for which data are available) and the shaded bars are the returns that foreigners earned in the United States. The pattern is striking. For each asset class—FDI, equities, bonds, and portfolio investment (equities and bonds)—foreigners have earned less investing in the United States than Americans have earned abroad over the last five years. This pattern continues to hold if one adjusts for currency movements and makes rough adjustments for risk. No matter how

5. For discussions of problems in measuring return differentials across countries and evidence for longer periods, see Curcuru, Dvorak, and Warnock (2008) and Lane and Milesi-Ferretti (2007).

Table 2.2 Country exposure to the United States (percent)

Exposure	Equities	Debt
Global market share	35.8	38.2
Mean	4.3	14.8
Median	1.3	9.1
Minimum	0	0.1
Maximum	27.8	67.1
Number of countries	82	54

Notes: Debt includes corporate, government, and agency debt. Foreign holdings include foreign official holdings.

Source: Based on analysis in Forbes (2008) using data from the US government.

one cuts the data, foreigners investing in the United States have earned substantially lower returns versus what they would have earned if they kept their money abroad—even within the same asset classes. Therefore, foreigners are clearly not investing in the United States because they have earned high returns year after year and are chasing returns.

A second reason why foreigners might be willing to invest over $5 billion a day in the United States is that this is a natural reduction of home bias that has been occurring around the world over the past decade. Individuals tend to be "overweight" in domestic holdings, and as they seek to diversify their portfolios internationally, it is not surprising that they would increase their investments in the largest market in the world.

Again, is this the case? To test the validity of this theory, it is useful to look at whether countries are over- or underinvested in the United States versus what a simple portfolio allocation model would predict. More specifically, a simple portfolio allocation model predicts that countries hold US liabilities so that the share of US holdings in their portfolio equals the share of the US market in the global portfolio.[6] Table 2.2 makes these comparisons.[7] The top row shows that the US share of the global equity market is about 36 percent, and the US share of the global debt market (which includes corporate, agency, and government debt) is about 38 percent. For investors with a well-diversified portfolio, about 36 percent of their equity exposure should be to the US equity market and about 38 percent of their debt exposure to the US debt market. The second row of the table, however, shows that the mean exposure to US equity and debt markets for countries around the world is far lower. On average, foreigners

6. This simple framework assumes that investors care only about the mean and variance of the real return of their invested wealth, markets are efficient, and cross-border barriers to investment are small.

7. See Forbes (2008) for additional details on this calculation and specific country statistics.

hold only 4 percent of their equity investments and only 14 percent of their debt investments in the United States. The median exposures to the US markets are even lower, suggesting that most countries do not have nearly as much exposure to US markets as standard portfolio diversification models would predict.[8] Most countries are underexposed to US equity and debt, and achieving more diversification in their portfolios could be an important factor driving investment in the United States. In other words, countries seeking to reduce their home bias and diversify their portfolios may generate a natural capital flow into the United States and support a continued strong demand for US liabilities (at least for a limited time).[9]

In addition to return chasing and portfolio diversification, a third factor that could drive US capital inflows is differences in financial-market development and the quest for more liquid and efficient financial markets. This explanation has recently received a substantial amount of attention in the academic literature (such as Caballero, Farhi, and Gourinchas 2008; Ju and Wei 2006; Mendoza, Quadrini, and Ríos-Rull 2006). Although the models and explanations in each of these papers are slightly different, the main idea is that countries around the world that are generating huge surplus earnings and savings (such as China and the Middle East) need to invest these earnings somewhere. Since financial markets in these countries are less developed—as measured by liquidity, efficiency, range of instruments, and the like—investors or governments choose to invest this money in another country that has more developed financial markets. Since the United States has the world's largest, most developed, and most liquid financial market, it has been the recipient of the bulk of this surplus earnings and savings. (Granted, many of these perceived advantages of the US market before 2007 may now be perceived as liabilities after the financial crisis, but these weaknesses were not widely appreciated before 2007.)

A fourth reason foreigners might invest in the United States is their trade links or other forms of "closeness." There is some evidence that when a country trades more with another country, it also tends to hold more of its financial liabilities (see Obstfeld and Rogoff 2001, Antràs and Caballero 2007). There is also evidence that countries that are "closer" tend to buy more of the other country's financial assets, with "closeness" measured not only by distance but also by ties through measures such as a common language, a colonial heritage, or a cheaper cost of communications (see

8. It is worth noting that China is one of the few countries that is "overexposed" to the United States versus the predictions of these simple portfolio allocation models (with about 50 percent of its debt exposure in the United States).

9. If foreign countries reduced their home bias against the United States, however, this would not necessarily generate an increase in net US capital inflows because US investors could simultaneously reduce their home bias and increase gross capital outflows (which could be even greater than the increase in gross capital inflows).

Portes, Rey, and Oh 2001; Daude and Fratzscher 2006). Any countries that trade more with the United States or are "closer" based on this broad definition would have a stronger demand for US financial liabilities.

A fifth and final factor that could drive foreign investment into the United States is perceived strong US corporate governance. I realize that statement may seem rather contradictory given the recent problems in US financial markets—such as in the markets for subprime housing and credit default swaps, to name a few. Prior to this crisis, however, there was a widespread belief that the United States had the gold standard of corporate governance in its financial markets, and if anything many analysts worried that the Sarbanes-Oxley Act of 2002 and recent reforms to US corporate governance may have been too stringent, rather than too loose. This perceived strong corporate governance may have been one factor attracting investment to the United States. Investors may have been willing to purchase US liabilities, even with the expectation of a lower return relative to other investment opportunities, due to the country's strong institutions, perceived good accounting standards, and belief that their investments would not be confiscated by the government.

Which of these five factors is actually important in driving foreign capital flows into the United States? In Forbes (2008), I perform a detailed empirical analysis to attempt to sort out the relative importance of factors such as return differentials, diversification, financial-market development, trade and closeness, and corporate governance in driving foreign investment into the United States.[10] The models, econometric issues, and lengthy series of results are beyond the scope of this paper, but the key findings can be briefly summarized. The main result of this analysis (which I confess was not my expectation) is that the relative development of US financial markets has been the key driver of foreign capital into the United States. Countries with less developed financial markets sought to take advantage of the more liquid and more efficient financial markets in the United States.

To get a sense of the magnitude of this effect, consider the case of China. China held $894 billion in US bonds at the end of 2007. Then assume that China developed its own financial markets, such as by increasing its private bond market capitalization to GDP to a size comparable to that in South Korea in 2006 (before the financial turmoil hit). This development of China's domestic bond market would make domestic investment more attractive and reduce China's need to invest its surplus savings abroad in US financial markets. Using the central estimates from Forbes (2008), the magnitude of this effect would be substantial; China would reduce its holdings of US bonds by $250 billion. Although this amount is small

10. For other analyses of the determinants of cross-border investments and capital flows, see Bertaut and Kole (2004), Chan, Covrig, and Ng (2005), Lane and Milesi-Ferretti (2008), and Faruqee, Li, and Yan (2004).

relative to the size of total US bond markets, it would undoubtedly have some effect on US financial markets—especially if sales of US bonds by the Chinese were accompanied by sales in other countries.

Although this empirical analysis found that relative levels of financial-market development appear to be the most important factor driving foreign investment into the United States, it also found that other factors were important. More specifically, the analysis found a moderate role for trading and closeness in driving capital flows: Countries that trade more with the United States and are closer through cultural ties, a common language, distance, or the cost of communications also tend to invest significantly more in the United States. Finally, the analysis found a small role of return chasing in explaining investment in US equity markets (although not bond markets). Surprisingly, there is no evidence that diversification motives are an important factor driving foreign investment in the United States.

Implications for the Euro

What are the implications for the euro? The role of financial-market development is the key lesson from this analysis of foreign investment in the United States and the corresponding demand for the dollar. How do European bond and equity markets compare with those in the United States? Euro bond markets have been growing in size and liquidity and are closing the gap with dollar bond markets. This increase in size will correspondingly make the euro bond markets more attractive and increase foreign investment. Equity market capitalization in the euro area, however, is still only about half of the equity market capitalization in the United States. As a result, in the near future European equity markets will not be as attractive an alternative for foreign investment that places a substantial importance on size and liquidity.

The key factor affecting the future of European equity and bond markets, however, will undoubtedly be how they perform during the current financial crisis and what new structure emerges. The responses by European regulators and policymakers will be critical. At the time of this writing, the immediate response to the crisis is sending a strong signal that there is no "European market" and instead Europe is a collection of individual markets with differentiated rules and governance. Each regulator and each government has been responding in the interests of its own country. If this approach continues, it may significantly detract from the attractiveness of European capital markets. Since a key factor driving foreign investment is the quest for large and liquid markets, the realization that European markets are not one large, combined, liquid, efficient, and deep market will deter foreign capital inflows.

In addition to financial-market depth, the empirical analysis discussed earlier suggested several other factors that can affect the demand for a

country's financial liabilities. One factor is trade flows and "closeness." It is hard to see significant changes in these variables over the next few years that will affect demand for European financial liabilities, but I will leave this topic to the other papers in this volume, which focus more on trade. Another factor driving demand for foreign investment in equity markets is return chasing. Over the three years from 2006 to 2008, European equity markets outperformed US equity markets. For example, the total return on the Eurofirst 300 over this period was 26 percent, while the return on the S&P 500 was 22 percent. The stronger return in European equity markets may have attracted more foreign investment over this period. Since the start of 2008, however, this pattern has reversed. From January 1, 2008 to October 6, 2008, the return on the Eurofirst 300 was –31 percent while the return on the S&P 500 was –28 percent. This weaker performance of the European equity markets may reduce demand for European equities in the immediate future, but given the unprecedented turmoil in all financial markets, it is likely that any such effect would be overwhelmed by other factors and it is impossible to make any prediction about relative returns going forward.

One result from the analysis of the drivers of foreign demand for US liabilities was the relatively unimportant role of diversification and a reduction in home bias. Even if this was an important factor, however, it is unlikely to be a major factor driving future demand for European financial liabilities as foreigners' portfolios are already more exposed to Europe than to the United States. As shown in table 2.3 (part of which replicates statistics in table 2.2), US equity markets are 35.8 percent of global equity markets, and the average holdings of US equities by foreigners are only 4.8 percent of their total equity portfolios. This indicates that foreigners hold only 13.5 percent of the optimal share of US investments in their equity portfolio.[11] Making a similar calculation, foreigners hold only 24.9 percent of the optimal share of US investments in their debt portfolio. The same calculations for the major European markets suggest that foreigners are still underweight in European equity and debt versus the optimal portfolio shares but substantially less underweight than they are for the United States. For example, foreigners hold 28.3 and 33.6 percent of the optimal shares of French and German equities, respectively, and 41.5 and 71.7 percent of French and German debt, respectively. This suggests that most countries around the world already have more exposure to European equity and debt markets than they do to US markets. As a result, any increase in diversification and reduction in home bias by foreign investors would actually drive a greater increase in demand for US liabilities than European liabilities.

11. The 13.5 percent is calculated as 35.8 percent divided by 4.8 percent. Note that these numbers are substantially smaller if the numerator is median foreign holdings instead of mean foreign holdings.

Table 2.3 Country exposure to the United States and Europe (percent)

Country	Global market weight	Mean	Percent of global market weight
France			
Equity	4.5	1.3	28.3
Debt	4.9	2.0	41.5
Germany			
Equity	3.0	1.0	33.6
Debt	5.9	4.2	71.7
United States			
Equity	35.8	4.8	13.5
Debt	38.2	9.5	24.9

Notes: Debt includes corporate, government, and agency debt. Foreign holdings include foreign official holdings.

Source: Based on analysis in Forbes (2008) using data from the International Monetary Fund's Coordinated Portfolio Investment Survey.

Conclusion

Key factors driving foreign demand for US equity and debt over the past few years are unlikely to be replicated in a surge in demand for European equity and debt and the corresponding demand for the euro. A key factor determining future demand for the euro will be how European financial markets emerge from the current crisis. If regulators and policymakers treat European equity and debt markets as one coherent, large, and liquid market, this will attract additional foreign investment in the future.

On the other hand, if they continue to treat Europe as a collection of individual markets with different regulations and different backstops, this will make European financial markets less attractive to foreigners in the future. Since foreigners place such a large premium on the size, liquidity, and depth of financial markets when allocating their investment, how European markets evolve in these terms will be a key factor driving future demand for the euro.

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International Trade in Financial Assets

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A few years ago, Andrew K. Rose of the University of California, Berkeley started a whole literature on the effects of common currencies on trade. His message was that the effect was very large, suggesting that the euro would also have a large effect on trade (Rose 2001). The estimated size of the euro's trade effect has since been reduced from very large to modest.

Richard E. Baldwin's bottom line is that the "euro probably did boost intra-Eurozone trade by something like five to ten percent" (Baldwin 2006). There are good reasons to focus on the euro's effect on trade in goods since as economists we believe that increasing trade has large welfare gains. Also, the datasets on trade flows on which these effects can be estimated are rich and of good quality. But this is not the case for financial flows. Still, it is surprising that there has been little research on the effect of the euro on trade in financial assets.

The euro's impact on trade in financial assets should be of particular interest because the euro may more directly affect transaction costs on financial markets than on goods markets as it can be considered a driver of financial integration.

A second reason to study the impact of the euro on financial integration is that, following the orthodox view, financial integration brings welfare gains. The role of financial markets to smooth transitory asymmetric shocks may be all the more important in the euro area, where asymmetric shocks cannot be stabilized by different monetary policies.

Before I report on the large and visible effect of the euro on financial

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markets, it is important to question whether the orthodox view is sound. This view on the welfare gains of deeper, more integrated, and larger financial markets is (or was) certainly shared among many policymakers for whom bigger financial markets, more financial assets are better. There is an implicit or explicit assumption in this conference (and even in its title) that countries or groups of countries (in the case of the euro area) should strive to have larger financial markets, more financial instruments, and, therefore, compete with each other to attract financial activities. Many interpreted the creation of the euro as part of this competition, and indeed one of the coveted prizes of being a "global currency" is that it supposedly comes with financial-market (or supermarket) dominance. The present financial crisis should, however, oblige us to question these assumptions.

We know the arguments that make sense theoretically: Bigger, more liquid financial markets (1) should allow more investment projects to be financed and, therefore, foster long-term growth and (2) should also allow risk diversification. Both arguments are linked because risk diversification is the mechanism that allows publicly traded firms to specialize in their core business and provide higher returns. However, when one compares the empirical literature on the gains brought by trade integration and the literature on the gains brought by financial integration and financial-market development, it is clear that the case for the latter is weaker or even absent.

The present crisis is obviously raising more doubts about the assumption of efficiency of financial markets and the assumption that they can diversify rather than aggravate aggregate risk in the economy. Bigger financial markets may indeed enable financing of more investment projects, but this is welfare enhancing only when financial markets are efficient. It is not yet clear that financial markets enable financing of the most efficient investment projects when they themselves are not efficient. In the presence of bubbles, the fact that more projects can be financed is not necessarily a good thing. Going even further, the competition among different countries to attract financial activities may have played a role in causing the present crisis by pushing toward excessive laxity in the rules and regulations of financial institutions.

In the present context, interpreting the creation of the euro as part of the global competition game to attract financial activities may lead to the conclusion that the euro has not been an element of global financial stability. The creation of the euro may have fostered more risk sharing and financial stability through other more standard mechanisms, but using the euro to foster competition between financial markets may be a dangerous game. Hence, I would not derive any strong unambiguous welfare implication from the empirical results suggesting that the euro has had a more visible and impressive effect on trade in financial assets than on trade in goods.

There is a small, recent literature on the euro-asset-trade link. For example, Philip Lane (2006) looks at the impact of the Economic and Mon-

etary Union (EMU) on bond portfolios. R. De Santis and B. Gerard (2006) analyze the impact of EMU on portfolio weights rebalancing. Another line of research follows the lead of Andrew Rose by analyzing the financial gravity equation (see Portes and Rey 2005 or Aviat and Coeurdacier 2007).

The first decade of the euro has demonstrated the powerful effect of a single currency on financial integration. The euro has led to a fall in transaction costs in cross-border trade in financial assets and weakened, but not eliminated, the financial home bias. The increase in intra–euro area holdings during 1999–2006 fully explains the increase in the share of advanced countries in cross-border world financial trade (Lane and Milesi-Ferretti 2008). From this point of view, the euro's effect seems to be much more visible and impressive on trade in financial assets than on trade in goods. An open question is how the current crisis will affect this integration process. Given the national nature of supervision and guarantees, there is a risk that the integration brought by the euro may be partially reversed.

Nicolas Coeurdacier and I recently studied the euro's impact on trade in financial assets using a theoretically derived financial gravity equation (Coeurdacier and Martin 2007). The theory is derived from a simple model (Martin and Rey 2004, 2006) of risk diversification in which the demand for assets (domestic and foreign) depends on income, relative returns, and various transaction costs that can be influenced by the creation of the euro. The advantage is that the model generates simple testable implications. Coeurdacier and I use two datasets—a cross-country one on bilateral asset holdings (bonds, equity, and banking assets) and a Swedish one on both holdings of foreign assets and outflows. Sweden is interesting to study because it is very open for both trade and financial flows; it is a member of the largest and most integrated regional trade agreement, the European Union, but is outside the euro area.

In this paper I first disentangle the different effects of the euro on asset holdings for countries both within and outside the euro area. In theory, the euro may have several effects on the cost of transacting assets: on transactions inside the euro area, on purchases of euro assets by countries outside the euro area, and on purchases of non-euro assets by euro area countries. For example, the elimination of currency risk had several effects. It decreased transaction costs of trading across different financial markets in the euro area. It led to more integration of national equity markets. In particular, due to local-currency mandates on many institutional investors, the replacement of national currencies by the euro meant that the feasible universe for such investors was greatly enlarged (Lane 2008).

As in trade theory, these relative changes in transaction costs may also result in diversion if, for euro-based investors, transaction costs to buy euro assets decrease more than to buy non-euro assets. From this point of view, the EMU is one of the drivers of financial integration, but it is different from the other drivers (financial deregulation, financial innovation, and liberalization of international capital flows) because it is asymmetric.

In addition, and as noted by Lane (2006), the single currency and single monetary policy may increase the correlation between returns of euro assets and make them closer substitutes. This may actually have a negative effect on the holdings of euro assets by countries in the euro area. The reason is that the increased elasticity of substitution between euro assets magnifies the impact of any remaining transaction cost on cross-border holdings within the euro area.

Coeurdacier and I (2007) find evidence that the euro affects both transaction costs and the elasticity of substitution, but the effect is different for different classes of assets and also depends on whether countries are in or outside the euro area. Our estimates (which depend on our estimated elasticity of substitution between assets) suggest that the transaction costs to buy assets from the euro area are lower by around 17 percent for equity and 14 percent for bonds. This unilateral financial liberalization effect of the euro benefits countries both in and outside the euro area.

In addition to this effect that benefits all countries, countries inside the euro area benefit from a decrease in transaction costs for equities and bonds of around 10 and 17 percent, respectively. This is the preferential financial liberalization aspect of the euro. Hence, for a country inside the euro area, the transaction cost of cross-border purchase of a stock or a eurobond is lower by around 27 and 31 percent, respectively. Overall, this translates into large effects on cross-border asset holdings. The euro increases bilateral bond holdings between two euro area countries by 150 percent while equity holdings rise by around 45 percent.

However, the impact on bank assets is not significant. The numbers for equities and bonds are very large, and one may think that, as for the early effects of the single currency on trade, they are too large to be true. But these numbers are not driven by the fact that euro area countries are more financially developed, have better institutions, and are closer to the other main financial markets (or more integrated in product markets). Coeurdacier and I (2007) control for these observable characteristics of euro area countries. One could also argue that this result is not due to the euro but to some empirical regularity among European countries: For some unobservable reasons Europe is more attractive for investors than other regions in the world. However, we control for regional dummies.

Even though the percentage difference in transaction costs inside and outside the euro area is estimated to be quantitatively similar on equity and bonds, the impact is much larger on bonds. The reason is that different bonds are much closer substitutes than different equities, and this magnifies the quantity impact of any reduction in transaction costs on bond holdings. These results hold once Coeurdacier and I (2007) control for a relatively large set of variables that might be correlated with being part of the euro area (trade linkages, geography, and exchange rate volatility). They confirm the results of Lane (2006) on the positive role of the euro on bond holdings between countries of the euro area, but quantitatively, our

estimated effect on bond holdings is smaller. The estimates also confirm that two eurobonds are more substitutable than other bonds: The elasticity of substitution is around three times as much. No such difference exists for equity, though.

Contrary to the literature on the euro's effect on trade in goods (Baldwin 2006, Flam and Nordstrom 2003), Coeurdacier and I (2007) find no evidence that the euro decreases the transaction cost for euro area countries of purchasing equity outside the euro area. In fact, for equities we find evidence that substantial diversion takes place, in the sense that euro area countries buy less equity from outside the euro area than what is predicted by financial gravity equations.

The diversion effect does not come from an absolute increase in transaction costs to buy non-euro assets but from a change in the relative cost of buying euro- versus non-euro-based assets. This evidence is based on comparing asset trade between euro area countries and the Nordic countries in (Finland) and outside (Sweden, Norway, and Denmark) the euro area. Interestingly, no diversion effect seems to operate for bonds. This may be because a significant portion of bonds in these countries is issued in euros.

The evidence of a diversion effect for cross-border asset trade, which has not been found in the case of goods trade, is also important because it suggests that the euro affected financial flows through a different mechanism than goods trade. In the latter case, Baldwin (2006) argues that the absence of a diversion effect suggests that the introduction of the euro has in effect brought down the fixed cost of trading in the euro area, not transaction costs. The diversion effect Coeurdacier and I (2007) find in the case of financial assets points to a transaction cost story where the relative—not absolute—transaction cost for a euro-based investor to buy assets from the rest of the world has increased with the euro. Also, we find that the euro effect is larger for flows than for stocks in the case of equities and loans. This suggests again that the euro has generated a fall in transaction costs.

I return to our empirical analysis to answer the following questions: Did larger financial markets benefit more from the creation of the euro? Did the United Kingdom, the largest financial center of the European Union but outside the euro area, disproportionately benefit from it? The answer to the first question is yes: Larger financial markets—in terms of market capitalization—both inside and outside the euro area benefited from a more pronounced fall in transaction costs to buy euro-based assets. From this point of view, the euro works as any process of financial integration in a world where economies of scale also matter for financial markets. This suggests that the euro certainly reinforces the process of concentration of financial markets. However, contrary to what is often assumed, I find no particular effect on the United Kingdom: It has not benefited more than other countries from lower transaction costs on euro-based assets.

One of the messages of Baldwin (2006) on the euro trade effect is that

countries do not need to be inside the euro area to benefit from most of its economic gains. This has some intriguing political economy implications on the future dynamics of monetary integration with potential free-rider problems. For the financial side of the euro story, this message does not hold fully, however. Outsiders do benefit from lower transaction costs to diversify risk when purchasing euro assets, but the gain is around half what the insiders get.

Even if one accepts the orthodox view that financial integration brings welfare benefits, the Coeurdacier-Martin (2007) results suggest that the welfare implications of an asymmetric financial liberalization process such as the EMU are complex. Our empirical results suggest that the euro has three main effects: (1) a unilateral financial liberalization that makes it cheaper—for all countries—to buy euro area assets; (2) a diversion effect due to the fact that lower transaction costs inside the euro area lead investors there to purchase relatively fewer non-euro assets; and (3) an increase in cross-border asset holding inside the euro area, which is the counterpart of the diversion effect and corresponds to a preferential financial liberalization.

In theoretical models such as Martin and Rey (2004, 2006), where the supply of assets is endogenous and assets are imperfect substitutes, this surge in the demand for euro-based assets leads to an increase in the supply of euro-based assets, which indeed has also taken place. Also, if the location of financial markets is itself endogenous, these theoretical models predict that an asymmetric decrease in transacting financial assets across borders (the way we interpret the impact of the EMU on financial markets) leads to two effects. On the one hand, financial activity of the smallest markets outside the euro area should migrate toward euro area countries. This is so except if the outsiders issue assets in euros, which has been the case with Scandinavian bonds, for example. On the other hand, the creation of an integrated financial market should also lead to the concentration of financial activities in the largest financial markets of the euro area.

In the orthodox view, the fact that the euro has led to lower transaction costs in buying euro assets should benefit all countries, as it implies that they pay less to diversify risk. The diversion effect is clearly detrimental to non-euro area countries. If assets are imperfect substitutes, the lower demand for non-euro equity (the only asset for which some diversion is suggested by the Coeurdacier-Martin [2007] empirical analysis) implies a lower price of non-euro assets relative to euro assets. This implies an increase in the cost of capital for firms outside the euro area. Overall, non-euro area countries should benefit from more and cheaper (in terms of transaction costs) opportunities to diversify financial risk but with a deterioration in their financial terms of trade.

Euro area countries benefit from an improvement in their financial terms of trade and from lower transaction costs to diversify risk. In a monetary union where asymmetric shocks cannot be stabilized with monetary

policy, such diversification may be all the more valuable. Of course, these days, one can have a less positive view of the systemic risk generated by the increased supply of new financial assets that results from euro-driven financial integration.

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Currency Invoicing of International Trade

LINDA S. GOLDBERG

The tenth anniversary of the euro is an excellent opportunity to explore the role of the euro as an international currency and some consequences of this role. In this paper, I address the use of euros and dollars in international trade transactions. Specifically, I explore the extent to which export and import transactions are invoiced in dollars and the reasons for these choices. I also comment on some related consequences for international transmission of shocks and for monetary policy effectiveness. I do not, however, address the value of euros or dollars, which is a very different concept from the role and consequences discussed in this paper; nor do I turn to the extensive evidence on the extent to which dollars and euros are used in exchange rate arrangements, central bank foreign exchange reserve portfolios, or a broad range of international financial transactions. For instance, substantial changes have occurred in corporate bond issuance, particularly in the growth of the euro's use in international bond issuance. Specifics on the role of euros and dollars in international financial transactions are well exposited in an excellent report published by the European Central Bank (ECB), *Review of the International Role of the Euro*. The most recent issue of the report, published in July 2008, provides rich and extensive information on this subject.[12]

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12. See also the discussion by Coeurdacier and Martin (2007) and the paper by Philippe Martin in this volume.

Evidence on Dollar and Euro Use in International Trade

The dollar continues to be the dominant currency of choice in international trade transactions. Table 2.4 presents examples of the dollar's share and usage for invoicing of exports in various countries. Korea and Thailand use the dollar extensively, invoicing more than 80 percent of their exports in dollars. The United States represents only around 20 percent of the direct exports of these countries, while other "dollar bloc" countries (i.e., countries with currencies that have exchange rate arrangements vis-à-vis the US dollar) as export destinations account for an additional 20 to 30 percent of exports. Even beyond exports to the United States and other dollar bloc countries from Korea and Thailand, there is a clear residual use of the dollar in international transactions. France and Germany use the dollar to invoice roughly a third of their extra–euro area export transactions. While much of this activity is likely accounted for by exports to the United States and to dollar bloc countries, there is still a small residual use of dollars on exports to other locations. This description is not the case for Hungary and Poland, which use the dollar less extensively.[13] Indeed, in Goldberg (2007) I ask whether the low share of dollars used in invoicing international trade is consistent with utility maximization for these countries seeking to join the euro area, given the share of commodities in their export baskets.

A different pattern emerges in the international trade usage of the euro. The euro's role has grown over time but mainly from its inception through 2004. Initially, the growth in the role of the euro came about through its replacement of euro area legacy currencies in invoicing international trade transactions. Later, the role of the euro expanded within countries that were at that point on the periphery of the euro area. Now, euro use is broadly observed as a European phenomenon, with widespread use of euros concentrated in, but not extending broadly beyond, transactions between countries with geographical proximity to the euro area.

Table 2.5 presents examples of euro use in settling or invoicing international trade transactions, focusing on the same group of countries as in table 2.4. Korea and Thailand use the euro only minimally, despite more than 10 percent of their exports reaching euro area destinations. By contrast, Hungary and Poland use the euro on the majority of their export transactions. This use is largely accounted for by the share of the euro area and euro bloc countries in Hungarian and Polish exports. Interestingly, as suggested by the negative sign for Poland in the rightmost column of table 2.5, some exports to these regions are not denominated in euros, perhaps due to the continuing role of the dollar in invoicing commodities and reference-priced international transactions.

13. In Goldberg (2007) I explore the use of dollars and euros among the accession countries to the euro area.

Table 2.4 International role of the US dollar (percent)

Country/region	Exports invoiced in dollars (1)	Share of country exports: To the United States (2)	Share of country exports: To "dollar bloc" countries (3)	Residual (1) − (2 + 3)
Asia				
Korea	84.9	20.8	28.2	35.9
Thailand	83.9	17.8	17.5	48.6
European Union				
France	34.2	15.4	11.8	7.0
Germany	31.6	17.9	10.8	2.9
EU accession countries				
Hungary	12.2	3.5	2.7	6.0
Poland	29.9	2.7	4.9	22.3

Note: All data correspond to 2002, except for Korea (2001) and Thailand (1996). Data for France and Germany correspond to extra–euro area trade.

Source: Goldberg and Tille (2008).

Table 2.5 International role of the euro (percent)

Country/region	Exports invoiced in euros (1)	Share of country exports: To the euro area (2)	Share of country exports: To "euro bloc" countries (3)	Residual (1) − (2 + 3)
Asia				
Korea	1.3	10.4	1.8	−10.9
Thailand	0.5	10.5	1.6	−11.6
European Union				
France	55.8	n.a.	13.2	42.6
Germany	49.0	n.a.	21.6	27.4
EU accession countries				
Hungary	83.1	65.5	13.1	4.5
Poland	60.2	57.6	16.5	−13.9

n.a. = not applicable

Note: All data correspond to 2002, except for Korea (2001) and Thailand (1996). Data for France and Germany correspond to extra–euro area trade.

Source: Goldberg and Tille (2008).

Determinants of Invoice Currency Selection in Trade

What reasons underlie dollar or euro use in international trade? Cedric Tille and I (Goldberg and Tille, forthcoming) look carefully at data across countries and over time in order to answer this question, expanding on the insights of a range of theoretical papers and empirical case studies.[14] Empirically, the key determinants of the use of the dollar and euro in trade are (1) the issuing country/region size—so the size of the United States in dollar use or the size of the euro area in euro use; (2) the exchange rate regime, which would capture the economic importance of the countries with currencies anchored in one way or another to dollars or euros; (3) transaction costs, including costs of moving in and out of currencies, for example, captured by bid-ask spreads, although this is not the dominant force at work by any means; and (4) which currency other producers use for export and import transactions. Two other empirical determinants are the industry compositions of goods exported or imported and specific aspects of macroeconomic volatility.

Conceptually, two key types of influences dominate which currency exporters choose for their transactions. One type is a "herding" or "coalescing" force. The second is a "hedging" force. I discuss the intuition behind this choice in more detail below and conclude by noting that the currency used for invoicing international trade transactions matters for a country's susceptibility to shocks and for its monetary policy effectiveness.

In order to understand the herding or coalescing influence, consider the exporter's goal of maximizing expected profits. Part of the exporter's decision pertains to which currency he or she should use for invoicing international transactions. A very important factor is what the exporter's competition is doing. In particular, an exporter may want to stay close to the invoicing strategies of his or her competitors. The reason is that the exporter sets his or her price in advance in some currency. Ideally, the price is set in a currency that is going to keep the demand for the exporter's products relatively stable after the exchange rate realizations determine future sales. Recognizing that there will be exchange rate fluctuations, the exporter has an incentive to set a price similar to his or her competitors' prices. If the exporter chooses otherwise, and if other producers' products can substitute for his or her product, expected profits will not be maximized since exchange rate movements can lead his or her price to be very different in the destination markets from the prices charged by competitors. Expected product demand will vary, leading to higher average marginal costs.

14. Theoretical antecedents include Bacchetta and van Wincoop (2005), Devereux and Engel (2001), Devereux, Engel, and Storgaard (2004), and Krugman (1980). Empirical contributions are surveyed in Goldberg and Tille (forthcoming). More recently, Kamps (2006) also explores the determinants of euro use.

The herding or coalescing motive in invoice currency choice is strongest in industries where goods for sale by various producers are close substitutes. Higher degrees of substitutability make it easier for purchasers to shift among suppliers after observing the exchange rates and final local-currency prices. Indeed, this idea of herding or coalescing in currency choice is consistent with a common invoicing currency in commodity markets or in other industries where goods produced by different players are close substitutes.

Hedging motives are also important for the currency invoicing choices of exporters. Some academic literature argues that the invoice currency selected should be the currency of the country that has the most macroeconomic stability (Devereux and Engel 2001). While this is a reasonable rule of thumb, a more specific formulation for capturing the hedging benefit from invoice currency choice on exporters stems from an analysis of producer income and costs. The exporter observes his or her marginal revenues moving around with exchange rates and their underlying drivers such as demand shocks, financial conditions, and monetary policies but also observes marginal costs fluctuating. The exporter should choose an invoice currency so that marginal revenues and marginal costs move together—hedging profit risks. In countries where the price that the exporter receives (marginal revenues) is going to be lower, the exporter wants to choose an invoice currency so that his or her marginal costs are lower as well.

Foreign exchange transaction costs also matter. Bid-ask spreads, which are one proxy for transaction costs in foreign exchange markets, still often generally favor the dollar.[15] There are exceptions, however, where the euro is favored as a low transaction cost currency. These occur mostly in the context of some of the euro area periphery countries, reinforcing the idea that geographic proximity has an effect on the international reach of the euro. Inertial forces influence transaction costs, since currencies that are extensively used and have high volumes likewise have lower transaction costs (Rey 2001).

Consequences of Invoice Currency Selection for Policy

Having described the motives influencing the choices of currencies for use in trade invoicing, it is useful to consider the policy consequences of these decisions by individual exporters. For this purpose, it is useful to divide the outcomes of individual decisions along two distinct dimensions that relate to the specific counterparties in trade. These counterparties may be

15. Goldberg and Tille (forthcoming) use bid-ask spreads observed through the mid-2000s. Detken and Hartmann (2002) and Goodhart, Love, and Dagfinn (2002) examine bid-ask spreads over the early years of the euro.

customers in the country issuing the currency or could be located elsewhere. For example, consider the case of US dollars used as an invoice currency. Most countries use them largely in their trade transactions with the United States. This use in invoicing trade with the issuing country is the first dimension of a currency's role in international trade. The second dimension arises when a currency is used in transactions between third countries or transactions that do not involve the United States but nonetheless use the dollar. In practice, the US dollar is extensively applied in both of these roles. The euro, by contrast, is still mainly used by countries with geographic proximity to the euro area but is not extensively used elsewhere.

A well-developed literature considers the implications of invoice currency choice and pricing decisions—local-currency pricing or producer-currency pricing—for optimal monetary policy in two trading countries, as in the contributions of Obstfeld and Rogoff (2002), Devereux and Engel (2003), Corsetti and Pesenti (2005), and Devereux, Shi, and Xu (2007). These implications apply to countries directly engaged in trade with the issuer of the currency used for invoicing, which is the first dimension of the international role of a currency. The basic message is that prices in the country whose currency is used are relatively stable. By contrast, in other markets the prices of traded goods move substantially in local-currency terms when exchange rates move. As a result, it is primarily in these other countries that consumption responds to the relative price changes induced by exchange rates. The center country will have more stable prices, although this is not necessarily a good thing. It implies stable relative prices, which may be undesirable if the efficient market response instead calls for a movement in the terms of trade.

Overall, a country with high pass-through of exchange rate movements into its own prices will have local inflation rates that are more sensitive to exchange rate movements than a country that has lower exchange rate pass-through. There will also be more expenditure switching and movement in imports in response to exchange rate movements in these high pass-through countries.

The second dimension of the international role of a currency arises when countries other than the issuing country use its currency for invoicing their international trade transactions. This use of a vehicle currency on trade among "periphery" countries has fundamental implications for periphery policy effectiveness, welfare, and transmission of shocks internationally (Goldberg and Tille 2008). If the periphery countries use the center country's currency on their bilateral international trade transactions, they are more sensitive to the center country's monetary policy, and their own national monetary policies are less effective at influencing prices in local markets.

The center country's monetary policy decisions also have externalities for the periphery. Under some conditions, the second dimension can be inefficient for periphery countries in their bilateral transactions. Given

such inefficiencies, in some cases periphery countries could benefit from international monetary policy cooperation with the center country. However, engaging in such cooperation would not be welfare enhancing for the center country, which otherwise would set policy only with its own welfare as criteria.

As a final point, suppose periphery countries use the center country currency on their trade transactions, and exchange rate movements between the center currency and periphery countries' currencies influence economic conditions in the periphery. Would it be better for those countries to peg against the dollar or the center country's currency? In fact, in the simplified example and setup of Goldberg and Tille (2008), pegged exchange rates do not dominate more flexible currency arrangements. The reason is that, even if countries are using the dollar in their own trade transactions, they remain better off maintaining domestic monetary policy as a tool at their disposal. This tool still presents monetary policymakers with flexibility so that monetary policy might be targeted at offsetting some adverse consequences of domestic shocks. This benefit is lost if the country fully abandons independent monetary policy and instead follows a currency peg. While certainly there may be many other reasons for choosing a pegged exchange rate regime, in this particular context, the peg is not the solution to the inefficiencies that arise from using vehicle currencies in periphery countries.

Conclusion

The dollar still is the dominant currency in international trade transactions, but the euro has gained substantial ground since its inception 10 years ago. Key commodities and goods that are close substitutes tend to be invoiced in dollars even within the euro area. Overall, one question remains, What conditions would tip currency use from dollars to euros in invoicing of international trade transactions? There would have to be very large shocks for this to occur, but the particular conditions await more research from academic and policy communities.

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Euro Area: Ready for the Storm?

JEAN PISANI-FERRY AND ANDRÉ SAPIR

The euro has been, is, and will remain a currency without a state. Ten or even five years ago, many in Europe would have questioned this assertion, because they saw the single currency as a stepping stone toward political union. A few treaty revisions and failed referendums later, however, this perspective has vanished. Even if the Treaty of Lisbon, which includes most of the provisions of the aborted constitutional treaty, is eventually ratified, the momentum has been lost. For all practical purposes, the euro must be regarded as an orphan currency.

The governance structure that results from this situation is complex. The choices made at the time of the Maastricht Treaty—a monetary union without a significant federal budget, limited coordination of budgetary and structural policies, no integrated financial supervision, and no strong political counterpart to the central bank—were regarded by many of its architects as temporary. Over time, it was hoped, a more federal governance structure would emerge. The main players in the negotiation, Germany and France, did not have the same views on what this structure would be, but they shared the same dream: Both expected the euro to accelerate integration.

Reforms of limited ambition are still possible and desirable, but on the whole the euro is bound to live with this governance structure in the years to come. This does not mean that it is doomed to fail. In fact it has thrived in its first ten years of existence. The euro has provided price stability to previously inflation-prone countries. It has offered a shelter against cur-

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rency crises. It has by and large been conducive to budgetary discipline. It has attracted five new members in addition to the eleven initial ones. And many countries in Europe wish to adopt it.[16]

On the world scene, the euro has also been successful. Even though research presented in this volume confirms that it has not rivaled the dollar's world currency status, it has certainly become a strong regional currency in Europe and the Mediterranean region. Some countries in the region have de facto adopted it, several peg to it, and many have become at least partially euroized.[17]

The question we address in this paper is whether the governance structure of the euro area is a handicap to further gains in international role and influence. Is the incomplete character of European integration bound to be perceived as a lingering weakness? Or is the rest of the world likely to accept, and adapt to, the sui generis character of the European currency?

This could have remained an abstract and unsolvable question. In fact, while governance had long been a topic for discussion among European scholars and policymakers, the rest of the world understandably paid limited attention to it. However, the advent of the crisis has put European governance to an unexpectedly demanding test. While the euro was introduced in the midst of the "great moderation" period and benefited from it in the first 8.5 years of its existence, the following 12 months were more agitated, and the last six months of its first decade were especially stormy. This limited experience has shown that there is a sharp contrast between what can be expected from a governance system in fair weather conditions and in stormy weather conditions. At the time of writing (early 2009), several lessons from this experience can be drawn. Many more will certainly come.

To address this question, we start by briefly laying out our conceptual framework. Section two is devoted to assessing the euro area's fair weather record. Stormy weather governance is reviewed in section three. We draw lessons for governance in section four and conclude in section five with the implications for the international role of the euro.

Conceptual Framework

Citizens generally do not expect their political leaders to exhibit the same qualities when the country is at peace and when it is at war. Similarly, one does not expect the same from economic governance in normal and in crisis times.

16. Accounts of the first ten years of the euro can be found in European Commission (2008) and Pisani-Ferry et al. (2008).

17. See especially György Szapáry's contribution to this volume in chapter 3.

In normal times, the key properties are stability, predictability, and incentive compatibility:

- After the damages of inflation and the stop-and-go policies of the 1970s, the vast majority of countries have converged on policy regimes that give high priority to macroeconomic stability. Clarity of objectives and transparent matching between policy objectives and policy instruments, including through assigning price stability to an independent central bank, have proved to be key technologies in this respect.
- In a world of forward-looking expectations, predictability of the policy course and of its responses to shocks has become regarded as an essential property. Policy rules that inform the public about the policymakers' reaction function have gained increasing support, either in the primitive form of instrument rules or in more sophisticated forms like flexible inflation targeting.
- Finally, incentive properties are of major importance in a system like the European one that heavily relies on decentralization. With monetary policy centralized but budgetary and structural policies decided at the national level, it is important that actions taken at one level influence those taken at another level in a way that is consistent with the overall objective. A key issue is whether or not actions taken centrally create incentives for stability-oriented actions by decentralized players. For example, important questions are whether the system is able to make budgetary policies consistent with the overall goal of price stability and whether labor- and product-market reforms introduced at the national level are conducive to swift adjustment in response to shocks.

However, different properties are needed in crisis times. Stability remains the objective in the medium term, but in the short term speed in countering the effects of the crisis is rather the overriding goal. Instead of predictability, policymakers aim at maximum discretion to address problems as they emerge and have recourse to innovative, previously untested solutions if needed. Finally, centralization with a view to ensuring swift implementation has precedence over incentives for good behavior at the decentralized level. Hence the qualities that are expected from a policy system in crisis times are clearly different from, and to some extent even contradictory to, those expected from the same system in normal times.

Fiscal and monetary policies tellingly illustrate this tension. The consensus view among economists is that in normal times the two instruments should be managed separately and that interaction between the two should be minimized. But in crisis times there can be a need for considerable interaction between monetary and budgetary policies.

The criteria for assessing the performance of the euro area therefore need to be specific to the situation. Instead of analyzing performance in

normal times and assuming that this record informs us about performance across the entire distribution of probable events, we draw a sharp distinction between the two situations and analyze performance accordingly.

The Fair Weather Record

The record of the euro area was extensively assessed on the occasion of the tenth anniversary of the common European currency (see especially European Commission 2008 and Pisani-Ferry et al. 2008, on which this section draws).

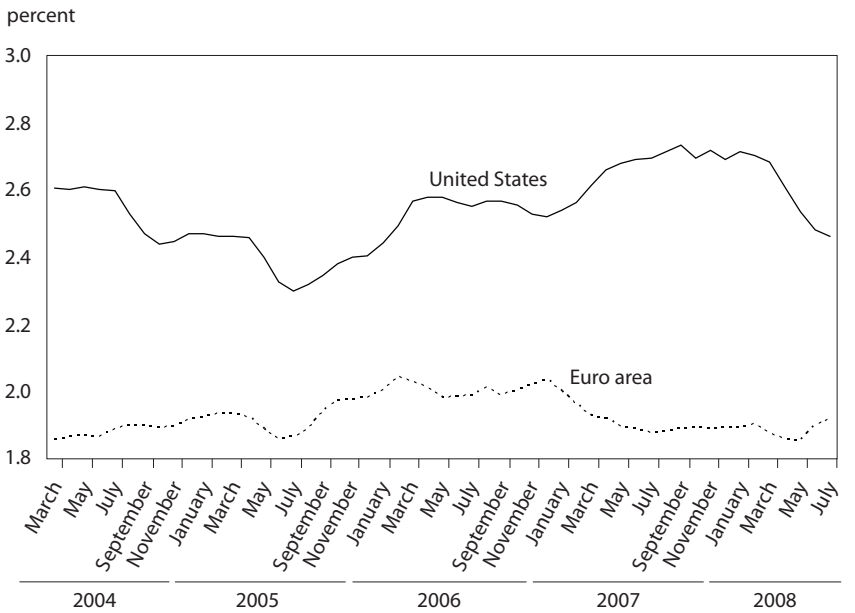
It is widely agreed that the transition to the euro was remarkably smooth and that in spite of the disparity of the participating countries' previous inflation record, price stability has on the whole been achieved. Figure 2.3, which gives the break-even measure of inflation expectations for the United States and the euro area, indicates that they have remained low and stable over the 2004–08 period, including during the 2008 commodities-induced price hike. This has been a major contribution to macroeconomic stability.

Though still positive, the record is less satisfactory as regards budgetary discipline. Overall, the aggregate budgetary deficit of the euro area was brought down from 2.3 percent of GDP in 1998 (the year before the euro was introduced) to 0.6 percent in 2007, and gross public debt as a percentage of GDP was reduced by five percentage points. This performance was better than in the United States, where the deficit increased over the same period and where the debt ratio remained roughly constant. But there have been two shortcomings: First, in spite of the elaborate apparatus put in place to prevent and punish excessive deficits, one country (Greece) still had a deficit above 3 percent in 2007 and two (France and Portugal) were perilously close to the threshold. To say the least, this indicates uneven effectiveness of the Stability and Growth Pact. Second and more importantly, the budgetary framework overlooked the potential for quickly transforming private debt into public debt through bailouts of insolvent private institutions and agents—and more generally through giving rise to sharp boom-and-bust cycles that can make the budgetary situation look artificially sound before it sharply deteriorates in a downturn. Ireland and Spain were regarded as paragons of fiscal virtue at end-2007, but their debt ratios are now projected by the European Commission to deteriorate by 20 and 30 percentage points, respectively, between end-2007 and end-2009.[18] This suggests that the focus on national account data, the absence of stress test, and the neglect of off–balance sheet liabilities have been significant weaknesses of the European budgetary discipline framework.

European surveillance was even less effective in addressing nonbud-

18. On the basis of EU Commission forecasts released in January 2009.

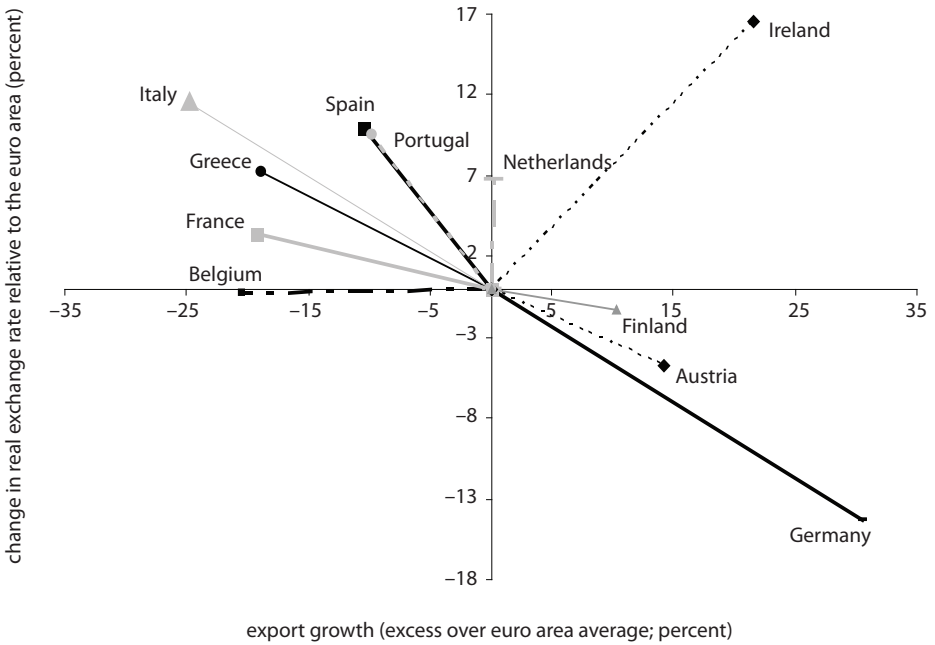
Figure 2.3 Inflation expectations in the United States and the euro area, 2004–08



Note: The figure shows three-month moving average of monthly break-even rates.
Source: Bank for International Settlements, *Quarterly Review*, September 2008.

getary sources of instability. Article 99 of the EU Treaty mandates the European Union to monitor economic developments in the member states and to ensure that they remain mutually consistent. Little effort was devoted to macroeconomic surveillance in part because the provisions of this article are markedly weaker than those regarding excessive budgetary deficits and in part because of the misguided belief that there is little macroeconomic instability to fear when monetary policy is geared toward price stability and budgetary policy toward the avoidance of excessive deficits. The validity of the assumption that by controlling budgetary deficits one is able to control risks of instability was already questioned in Pisani-Ferry et al. (2008) and European Commission (2008) reports. Especially, it was noted that enduring divergences in price developments could be observed within the euro area, which possibly resulted in real exchange rate misalignments (figure 2.4). In other words, the so-called competitiveness channel was too slow and too weak to prevent boom-and-bust cycles fueled by excessively low real interest rates (which themselves resulted from above-average inflation). As the boom ended, Spain and Ireland, the two champions of the euro's first decade, plunged into deep and probably long recessions.

Figure 2.4 Real exchange rate and export performance divergence in the euro area, cumulative change between 1999 and 2007



Source: Bruegel calculations based on Eurostat and DG ECFIN (European Commission).

With the benefit of hindsight, the obsession with budgetary numerology and the failure of surveillance to trigger appropriate policy responses can be regarded as a major flaw in the policy system. Even in the absence of a global crisis, they would likely have resulted in significant adjustment difficulties. To undergo this adjustment in the context of a worldwide recession is a major challenge for the countries affected and the euro area as a whole.

In spite of the success of its currency, euro area governance has been disappointing in the field of external monetary and financial relations. The relationships among immediate neighbors and potential candidates to membership have been marred with controversies about euro area entry criteria. While several countries in the region quickly adopted the euro as an external anchor and/or became largely euroized, the attitude of euro area authorities has been extremely guarded. The Commission, the European Central Bank (ECB), and the Eurogroup insisted on sticking to the letter of entry criteria defined at Maastricht and used in 1998 at the time of the creation of the euro area, even though to take as a benchmark the

three EU countries with the lowest inflation rate for assessing the inflation performance of a candidate country amounted to ignoring the very existence of the euro area and the fact that the ECB has adopted a definition of price stability. There was a failure to adopt a criterion that preserves the spirit of the treaty while being adaptable to changing conditions, and this was widely interpreted as indicating reluctance toward a comprehensive enlargement.

The relation with international partners developed positively as a growing number of countries recognized the emergence of the euro as a major change in the international landscape, but it has been made unduly complex by the fragmented nature of the area's external representation. Table 2.6, from Pisani-Ferry et al. (2008), gives an overview of the external representation of the euro area. Even in normal times, such a degree of fragmentation and unevenness is bound to be a source of ineffectiveness.

Stormy Weather Experience

The weather in the euro area, which had been mostly fair since 1999, quickly turned grey and windy in the summer of 2007, when Europe suddenly faced a liquidity crisis detonated by tensions in the US subprime mortgage market. Remarkably, the ECB was the first central bank to react, with an injection of €95 billion ($130 billion) on August 9 aimed at ensuring orderly conditions in the euro money market. Later the same day the Federal Reserve provided $24 billion of liquidity. The next day, the ECB and the Federal Reserve intervened again to the tune of €61 billion ($84 billion) and $38 billion, respectively, with other central banks around the world injecting a total of roughly $20 billion.

During the next 13 months, the ECB continued to apply three measures to alleviate tensions in the euro money market. First, it continued to frontload the supply of liquidity over the reserve maintenance periods. Second, it maintained the increased share of longer-term operations in its refinancing operations, which it had gradually built up since the start of the crisis. Third, the ECB continued to conduct US dollar-term auction facilities in cooperation with the US Federal Reserve and other central banks, thereby providing US dollar liquidity to euro area banks. Altogether these measures proved that the ECB was as capable as the US Federal Reserve to contain the liquidity crisis, thus reassuring the euro area that its policy framework was robust to stressful conditions.

Then, on September 14, 2008, another, significantly more severe shock came from the United States: Lehman Brothers had gone bankrupt. The same day, credit default swaps ratcheted up, stock markets plummeted, central banks injected billions of dollars into money markets, and Bank of America agreed to buy Merrill Lynch. The liquidity situation deteriorated further on both sides of the Atlantic, and spreads between short-term in-

Table 2.6 Overview of external representation of the euro area

Forum	European Central Bank	Eurogroup Presidency	EU Presidency	European Commission	EU member states
Organization for Economic Cooperation and Development	Participates in economic and development review committee, economic policy committee, and committee on financial markets	Participates in economic and development review committee examination of the euro area		Quasi-membership (no voting rights and does not contribute to OECD budget but participates in all meetings)	19
IMF Executive Board	Observer status		Euro area position represented by executive director holding EU/euro area presidency		27
Financial Stability Forum	Full participation				5
International Monetary and Financial Committee	Observer status		Full participation depending on the constituency agreement	Observer status	27
IMF Multilateral Consultations	Full participation	Full participation	No	Full participation	
G-7 Finance Ministers	Nearly full attendance	Nearly full attendance		Partial attendance (not involved in preparatory work)	4
G-20	Full participation		Full participation	Attends meetings as part of EU Presidency delegation	5

IMF = International Monetary Fund

Note: Shaded cells denote no representation.

Source: Pisani-Ferry et al. (2008).

terbank interest rates and swap rates on government securities reached unprecedented levels. Two days later, AIG Corporation, the world's biggest insurance company, was bailed out by the US Federal Reserve. The next day, the banking crisis spread to the United Kingdom: Halifax Bank of Scotland (HBOS) merged with Lloyds TSB in an emergency rescue plan.

On September 29 the Belgo-Dutch bank Fortis was bailed out by Belgium, Luxembourg, and the Netherlands, and the next day the Belgo-French bank Dexia was bailed out by Belgium, France, and Luxembourg.

The rapid rescue of Fortis and Dexia was hailed as a success and led nearly all observers to believe that the previously untested capacity of euro area governments to cooperate in times of crisis was real. However, the mood changed rapidly. On September 30 the Irish government unilaterally guaranteed safety of all deposits, bonds, and debts in Irish banks for the next two years. On October 3 the Dutch government nationalized the Dutch activities of Fortis, forcing the Belgian government to take over its Belgian activities. Rather than continuing to cooperate and splitting the bill to maintain the Belgo-Dutch bank, the two governments simply decided to split the bank along national lines. On October 4 a meeting of the heads of state of the four major euro area countries ended in empty words as Germany refused to agree on a concerted bank rescue and stabilization plan. Finally, on October 5 the German government issued a unilateral guarantee of all deposits in German banks. The weather in the euro area had now definitely turned dark and stormy.

For a while, it looked as if the European Union, or even the euro area, was unable to coordinate the response to the crisis. A group of prominent economists rightly worried that "The current approach of rescuing one institution after another with national funds will lead to a Balkanization of the European banking sector. Agreeing on a harmonized level for deposit insurance would also be important" (Alesina et al. 2008).

At the Eurogroup and Ecofin meetings on October 6–7, finance ministers agreed that the economic situation "calls for a coordinated response at the EU level" but failed to adopt anything beyond broad principles and did not even discuss the rescue plan that the UK government would announce the following day. On October 8, the ECB reduced its policy rate by 50 basis points and changed its tender procedure, moving to fixed-rate refinancing. However, this step failed to impress money markets. At the end of the week, financial markets throughout the world suffered one of their worst days in history ("Black Friday"), which prompted the French president of the European Union to convene the first-ever meeting of the heads of state or government of the euro area. This emergency summit, held in Paris on October 12, is viewed as the turning point in the efforts to bring about a concerted European response to the financial crisis.

The Paris summit was a success on many fronts. Firstly, it sent an important message to the markets. European governments abandoned the prevailing uncoordinated case-by-case approach in favor of a series of national plans based on a common template and pledged a total of nearly 2 trillion euros to shore up their financial sectors, sparking sharp rallies across the continent's stock markets.

Secondly, the summit demonstrated that the euro area is governed not only by the ECB but also by political leaders. The Eurogroup could not

have sent that message for two reasons. One, finance ministers lack the public recognition that heads of state or government enjoy. Moreover, despite being prime minister of his country, Jean-Claude Juncker, president of the Eurogroup, clearly lacks the kind of European public recognition that President Nicolas Sarkozy enjoys. Two, because the Eurogroup meets routinely and in the drab building of the EU Council, it could not have conveyed the sense of emergency and importance that was tacked to the first meeting of euro area leaders held in the Elysée Palace.

Thirdly, by inviting UK Prime Minister Gordon Brown to the Paris meeting, President Sarkozy succeeded in building a bridge between the euro area and not only the most important EU country outside the euro area, which is important politically, but also the area's main financial centre, which is equally important. Indeed, the financial crisis has exposed a fundamental issue of economic governance for the euro area. While members of the euro area clearly share common financial interests owing to the fact that they share a common central bank, they also have common financial interests with the other members of the European Union, and the United Kingdom in particular, by virtue of the Single Market in financial services. This fundamental issue also has implications for the United Kingdom, since any remedy to the euro area's financial governance that did not include the United Kingdom—for instance, a euro area banking supervision mechanism—would risk jeopardizing the role of London as the euro area's de facto financial center.

Lastly, the show of unity among all EU leaders at the European Council meeting that was held a few days after the Paris summit enabled the European Union to assume a role of global leadership in the crisis at two levels. First, the United States adjusted its banking rescue plan to make room for capital injections, thereby bringing it closer to the European template, itself based on the UK plan. Second, and more crucially, immediately after the European Council meeting, President Sarkozy and European Commission President José Manuel Barroso flew to Washington to meet with President George W. Bush, carrying with them the proposal, originally put forward by Prime Minister Brown and adopted by the European Council, for a global summit to be held before the end of 2008 to reform the world financial system. The European proposal laid the foundation for a series of G-20 leaders' summits on financial markets and the global economy, the first of which was held in Washington on November 20, 2008, and the second to be held in London on April 2, 2009.

Despite the undeniable success of the Paris summit and the decisions taken at the ensuing European Council meeting, many problems have lingered. Not only did a number of important policy issues remain unsolved but also an economic crisis soon came on top of the financial one, bringing new challenges to euro area governance.

Several major policy issues still remain unsettled. The first concerns the treatment of pan-European banks. After Fortis and Dexia (whose bail-

outs by national governments were only a first step and whose fates have not been settled at the time of writing), a number of other banks with pan-European operations needed to be rescued. Fortunately, however, none of these institutions are quite as multinational in their governance structure as Fortis was and Dexia remains. Their bailouts were therefore purely national. Had a bank required bailing out by several states (or should it require it in the near future), the lack of burden-sharing rules among European countries would inevitably have created a problem.

The second issue concerns the situation of small countries with relatively large financial institutions. Clearly small countries have suffered more than large countries. The bailouts in France and Germany account for less than 2 percent of each country's GDP and even in the United Kingdom, they barely reach 3 percent. By contrast the bailouts represent around 4 percent of GDP for Ireland and Belgium and 6 percent for the Netherlands and Luxembourg. Austria, a small country whose banks are heavily exposed in Central and Eastern Europe, has already committed some 5 percent of GDP. Judging from spreads and credit default swaps on government bonds, markets are already pricing the risk that public finances in small countries like Austria or Ireland could pay a high price for rescuing their banking sectors. With no common EU or euro area chest, some small countries may have to rethink their financial-sector strategies and even question the very principle of specializing in the provision of financial services.

The third issue is the situation in Central and Eastern Europe. Until September 15 the crisis hardly affected countries in the region. There were difficulties in some countries but they were mostly national. However, after the bankruptcy of Lehman Brothers, all changed: Interbank markets have been strained, there have been capital flow reversals, several currencies have depreciated sharply, and the recession has suddenly hit the region. Against this background, the euro area's response has been slow. It first overlooked the potential consequences of its decisions on the neighboring countries—be they capital outflows in response to the issuance of better guarantees in Western Europe or credit curtailments in response to demands made to banks to extend credit further in their home countries. It was then reluctant to formulate an overall policy response, beyond the financial assistance provided to countries under an International Monetary Fund (IMF) program, for fear of taking some form of responsibility for what was perceived as national policy issues. These hesitations have tended to overshadow the participation by the European Union in IMF financial assistance programs for Hungary and Latvia.

The fourth issue is the fragmentation of the Single Market. Despite the common framework put in place to facilitate the funding of banks, to provide financial institutions with additional capital resources, and to allow the recapitalization of distressed banks, it appears that uneven implementation of commonly agreed rules is the norm rather than the exception.

Not a day goes by without a measure being taken by an EU country that seems to favor national financial institutions and/or requires these institutions to provide credit to national customers.

The final issue concerns the design and implementation of a fiscal stimulus. While governments were trying to respond to the banking crisis, it became clear that it would soon unleash an economic crisis that would risk further deteriorating the financial situation and create a downward spiral resulting in economic depression. In order to avoid this eventuality, several voices on both sides of the Atlantic came out in favor of a stimulus package. On both sides, there were natural concerns about fiscal sustainability.

Even among the vast majority who supported the idea of a fiscal stimulus, two additional issues were raised in Europe, both relating to the absence of a euro area (or EU) federal state. The first is the lack of a euro area fiscal instrument to support economic activity and the necessity to rely on national instruments without being able to rely on an effective coordination mechanism. The second is the fact that euro area members entered the crisis in very different fiscal conditions, rendering the decision to set in motion national fiscal instruments all the more difficult. The European Recovery Programme put forward by us and Jakob von Weizsäcker in mid-November 2008 was precisely designed to counter these two issues. It envisaged a harmonized indirect tax (value-added tax) cut in all EU countries and the creation of a mechanism to ensure medium-term fiscal sustainability in countries with unfavorable starting conditions.

The European Economic Recovery Plan proposed by the European Commission a couple of weeks later also recognized the difficulty of engineering a European fiscal stimulus without a proper European instrument and with diverse national situations but fell short of proposing the use of common mechanisms. Instead, it simply called on EU member states to adopt national measures. The Commission proposal was adopted by the December 2008 European Council and has been implemented in various ways by EU members states. However, by essentially ignoring the two issues flagged above, the implementation of the European plan suffers from two problems.

First, because countries were allowed wide discretion in the choice of fiscal instrument, many have adopted measures that tend to favor national producers at the expense of foreign producers, thereby reintroducing barriers in the Single Market.

Second, because no new mechanism to ensure the sustainability of public finances was introduced, a number of euro area countries soon began suffering great difficulties. For many years, markets seemed not to pay attention to differences in public finance conditions across euro area countries. For instance, up to June 2007, the 10-year government spread over German bunds was as low as 20 basis points for Greece despite a public debt of around 100 percent and persistent deficits. One year later, in spite of the liquidity crisis, its spread was still reasonably low at 60 basis points.

Since then, the crisis has left a heavy mark. Greek bond spreads jumped to 150 basis points in October 2008 and reached 250 points in early January 2009. Other euro area countries whose spreads have dramatically increased since October 2008 and were above 100 basis points at the beginning of 2009 are Ireland (212 points), Italy (128 points), Slovenia (126 points), Portugal (123 points), and Spain (109 points). As a result, several of these countries have already seen their S&P ratings downgraded by one notch. In January 2009 Spain's went down from AAA to AA+, Portugal's from AA– to A+, and Greece's from A to A–, the lowest of any euro area country. This situation is worrisome because the euro area has neither a common funding scheme nor a well-specified mechanism to assist members facing a potential national funding problem.

Lessons

In a report on the euro's first years, written and published before the crisis developed, Pisani-Ferry et al. (2008) warned: "A policy framework should not only be judged by its agility in fair weather conditions, but also by its resilience in storm conditions—not only financial but also economic and political storms…. In this respect, it should be recalled that…the last eight years have been benign. The policy framework of the euro area has thus not yet been tested under stress. It remains to be seen how well EMU is set up to deal with events like disruptive global shocks or internal crises."

The experience since the start of the crisis confirms that the euro area governance system was well conceived to deal with normal conditions—even though the scope, priorities, and methods of surveillance need to be improved—but lacks the properties required to operate in crisis times enumerated in the first section, namely speed of reaction, policy discretion, and centralized action. At the center of the problem is the absence of a euro area political body capable of making appropriate financial and fiscal decisions in difficult times. Ad hoc coordination has indeed substituted for institutional responses, and this was welcome. There are, however, limits to what this type of coordination can achieve.

The Eurogroup could, one day, evolve into such a political body, but it is far from there at the moment. For the time being, the Eurogroup is simply an informal body without a defined mission, whose role had developed in two directions prior to the crisis: as an enforcer of EMU rules and as the venue for addressing the collective action problems faced by euro area members. Although it was always better in the first direction (because it could rely on treaty-based mechanisms for implementation), the latter has simply disappeared since the beginning of the crisis, despite the fact that it should have assumed precisely this role.[19] Were it not for the

19. The move in 2005 to a fixed presidency of the Eurogroup, instead of a rotating one, was

October 2008 euro area summit in Paris, the governance of the euro area during the crisis would have been assumed by the ECB alone, thereby underscoring the fact that the euro is a currency not only without a state but also without political governance.

The governance of the euro area has been, since the launch of the euro, the subject of difficult discussions between its members, especially between France and Germany. Whether or not these countries will draw the lessons from the crisis will largely depend on their ability to agree on a diagnosis of the problem and on remedies.

Conclusion

What are the implications of our analysis of euro area governance for the international role of the euro, as both a regional and a global currency?

As already indicated, the euro had become a successful international currency during the relatively calm years that preceded the crisis. Even though it had not rivaled the dollar's world currency status, it had certainly become a strong regional currency and has been adopted as an anchor, as a reference, or as a vehicle for financial transactions in the countries neighboring the euro area.

Is there reason to believe that the management of the crisis so far will dramatically alter this state of affairs? We feel that the governance of the euro area in the current stormy weather conditions has not enhanced the international status of the euro.

Within the euro area, rising bond spreads and falling ratings in some members, and the absence of a common funding scheme and a well-specified mechanism to assist those facing funding problems, have done nothing to improve the image of the euro with global investors. Although we regard recent remarks on the possible exit or expulsion of those members from the euro area as pure fantasy, we acknowledge that the lack of clarity on how to resolve their debt problems is a source of worry.

The treatment by the euro area of regional partners that are facing severe economic and financial difficulties and rely on the euro as their reference currency has not been satisfactory either. Such partners include primarily new EU member states, but also countries outside the European Union, like Ukraine. These countries have typically suffered from the drying up of capital flows from the euro area and from the lack of assistance by euro area institutions, including the ECB (Darvas and Pisani-Ferry 2008). Although this divide between countries inside and outside the euro area may accelerate the adoption of the euro by some outsiders, the vast majority are unlikely to join before the end of the crisis. In the meantime, there-

intended to give it the means to take initiative and exercise leadership, but initiatives and leadership have been remarkably absent.

fore, the weak crisis governance of the euro area is likely to be a burden on these countries, which may affect their choice of reference currency.

In conclusion, the euro has proved to be attractive as a fair weather currency for countries and investors well beyond its borders. But it remains to be seen whether it is equipped with strong enough governance to also succeed as a stormy weather currency.

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Geopolitical Limits to the Euro's Global Role

ADAM S. POSEN

"Hillel used to say: If I am not for myself, who will be for me? Yet, if I am for myself only, what am I? And if not now, when?"

—Mishnah Pirke Avot (Ethics of the Fathers), 1:14.

Rav Hillel could have been posing questions to the euro area's leadership today about its vision for the euro at ten. If the governments of the euro area are unwilling to combine forces and representation to shape the global environment in which they operate, will any other government feel compelled to take their views into account? If the euro area's response to the financial crisis hitting Eastern European economies, including some EU member states, is to make future euro area membership less attainable and to fearfully run from "bailouts," can it be seen as broadly attractive to potential members? If the euro is neither eagerly promoted by its issuers nor widely adopted by market participants as the alternative to the dollar at a time of the greatest postwar decline in the United States' relative economic credibility, will the euro ever become a global currency? The answer to all three questions is clearly no. For all the euro's indisputable success as a monetary regime for member economies, euro area institutions' and member countries' leadership has failed to advocate for the area's long-term international interests, failed to extend its internal stability to its neighbors and potential members, and failed to seize the moment for the euro when US policy is widely perceived to have been destabilizing.

These failures reflect an often overlooked fundamental determinant of a currency's global role: the currency issuer's geostrategic role. Economic factors alone, such as countries' relative size and inflation rates and their

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trade patterns, are insufficient to explain the pattern of reserve currency or exchange rate peg choices seen in the world—if these were together sufficient, the euro would already be a truly global currency in every sense. For obvious reasons of diplomacy among monetary officials, and of specialization among economic researchers, there is little incentive to take the geostrategic factor into account. Yet, the national security capabilities and foreign policy projection more broadly of the government behind a potentially global currency do heavily influence the extent to which other countries take up that currency. National security relationships between governments, especially but not only where explicit military guarantees are relevant, put pressure on both sides of the relationship to link their pursuit of stability, including monetary stability.

The currency-issuing government that also provides foreign policy guarantees, let alone stations troops in and provides arms to another country, has the leverage to get some of its credit needs funded by that recipient country. This leverage results in the anchor country having its own currency–denominated debt kept as foreign reserves by the security-dependent economy and also in deepening of two-way financial transactions. The recipient country generates in turn an interest for the currency anchor country to support integration of the recipient's political and economic elites with its home economy. That integration of educational and business relationships will tend to increase the share of trade invoiced in the home country's currency, as well as the overall amount of bilateral investment and trade in the long run. In short, the various ways in which a currency is used globally by other countries are going to be more heavily and exclusively used where a national security relationship exists. Additionally, as seen in the flight to the dollar as a safe haven during the height of the 2008–09 financial crisis, having a currency backed by a leading power provides a comfort to fearful investors, further reinforcing the feedback between geostrategic and monetary integration.

Thus, for all its economic virtues, there is a limit to the degree to which the euro can become a truly global currency. The euro area is certainly not a hard power. It includes countries with differing stances on international affairs, and there is no common foreign and security policy as yet. So long as the United Kingdom keeps its national currency, the euro area does not include the country with the largest military projection capacity in the European Union. The few nonbordering countries that have pegged to the euro tend to be those with security ties to euro area members (notably African states to France, the one hard power in the euro area membership to project force); in contrast, a number of countries pegged to the dollar have geopolitical ties with the United States that outweigh their trade and financial linkages to the euro. So there will continue to be a slow increase in euro usage in trade invoicing, financial investment, and reserve holdings of third countries commensurate with those countries' deepening of real economic ties to Europe—but nothing to rival the dollar on any of

these counts. Over time, this trend, too, will diminish as the size of the euro area economy shrinks relative to the rest of the world (Posen 2004). In fact, recent developments obscure the reality that the euro is at a temporary peak of influence, while the dollar will continue to benefit from the geopolitical sources of its global role, which the euro cannot yet or soon, if ever, match.

The limited and defensive response of euro area policymakers to the impact of the financial crisis on neighboring countries—including on some EU members and major trading partners of the euro area—brings home this fundamental geostrategic weakness, despite the euro's success in easier times to date. Failure to respond adequately to the financial crisis in Eastern Europe is itself the greatest threat to the future growth and stability of the euro area. The strictly economic rules-based treatment of crisis-hit Eastern European countries may actually weaken the euro's global role by demonstrating the limits of political commitment, especially if growth in the East declines persistently following the crisis. Ironically, while most EU members outside the euro area have found the goal of euro adoption more attractive in light of the crisis, they have simultaneously seen euro area membership pulling farther away because of the euro area leadership's short-sighted response.

Geostrategic Relationships Drive Exchange Rate Arrangements and Reserve Accumulation[20]

A key determinant of a country's public-sector demand for a foreign currency is the existence or not of an exchange rate peg to that foreign currency. The existence or not of an explicit official currency peg, however, understates the influence of this relationship on the dollar's global role along three dimensions. First, the vast majority of emerging markets and smaller economies run monetary policies that involve highly managed floats, if not de facto pegs, primarily against the dollar (Calvo and Reinhart 2002, IMF 2007), so the list of official peggers understates the customer base for dollars from this source. Second, to the degree that currency ties endogenously encourage trade links, capital flows, and economic integration between economies (in the spirit of Frankel and Rose 1996), private-sector demand for the anchor currency and currency of intervention will also rise. Third, countries that take on exchange rate pegs, in part as a means of monetary stabilization or credible commitment to price stability, will be extremely reluctant to alter a peg arrangement for fear of inducing instability, even if that means turbulence in the course of anchor currency movements (Eichengreen and Masson 1998).[21] In short,

20. This section is based on the research presented in Posen (2008).

21. Eichengreen (1999, 106) puts it well: "If the country, having brought down inflation, can

the decision to orient a country's currency and exchange rate policy to the dollar as an anchor accounts for a large and persistent share of the dollar's global role.

But what determines a country's choice of peg? The workhorse baseline for evaluating currency affiliations remains the Mundell-McKinnon optimal currency area (OCA) criteria, which emphasize the direction of trade and the relative synchronization of shocks. Given the rise of the euro area and Asia as sources of international trade and global growth, and the still important role of geographical proximity in determining trade patterns, there would seem to be a strong argument for a large number of currencies to peg (or managed float) against the euro or even the yen or renminbi, rather than against the dollar (as discussed in McKinnon 2004). These optimal criteria are offset in part by the aforementioned reluctance to change preexisting pegs and in part by increasing cyclical synchronization and deepening trade ties over time arising from those pegs. Even so, the seemingly unavoidable occurrence of financial crises and divergences that break such pegs, or force changes of their valuations, would be expected to overcome these inertial forces over time. The argument that the euro exists as an alternative to the dollar thus arises in a different form. If undervaluing the exchange rate for export success is important, then it is another argument for the target currency to shift to a basket or change anchor as export markets shift.

Thus, the question of the euro's global role requires an assessment of what is keeping export-oriented emerging markets from switching their pegs to the euro, or at least to a euro-dollar basket, when many have greater proximity to and growth in trade volumes with the euro area than with the United States. Recent cyclical divergences have been insufficient to prompt such a switch, even when the Federal Reserve has been rapidly cutting interest rates while many of the pegging countries face far less incentive and room for monetary accommodation.[22] The actual inflation differential of the euro area and the United States, current or expected, is a minor factor.[23] Nonetheless, if a number of countries did switch their

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then smoothly exit the currency peg before being forced to do so in a crisis, the peg will have been worth the candle. The problem is the same as with using heroin or morphine to treat a patient in pain; once the suffering subsides, the patient is still hooked…. Smooth exits from currency pegs, whatever the original rationale for the peg, are very much the exception to the rule."

22. For example, the decision of Kuwait to leave its dollar peg in May 2007 was explained in these terms; see also the discussion in Setser (2007). Mohsin Khan in chapter 3 of this volume points out that even after Kuwait left the peg, it still keeps its reserves primarily in dollars and of course its oil and gas exports are invoiced in dollars.

23. The maximum difference between US and euro area headline inflation rates since the end of Bretton Woods was 1.3 percent at an annualized rate, and the latest data have come in well below that amount.

exchange rate pegs, official and de facto managed floats, away from the dollar toward the euro, many of the inertial forces mentioned above would tend to lock in the change. That, in turn, would increase the euro's role in those countries' private sectors as well.

Foreign policy and national security ties, however, play a significant role in countries' decisions about exchange rate relationships. On that count, the conditions continue to favor the dollar's global use as an anchor currency over that of the euro. The ability of such relationships to overcome even strong economic pressures to change a peg can be seen in the response of Germany and Japan when their fixed exchange rates against the dollar during the 1960s led to significant imported inflation and macroeconomic overheating. As recounted in detail in Gavin (2003), West Germany repeatedly confronted the explicit linkage of its security commitment to maintain US troops in country as a deterrent to the Warsaw Pact to Germany's commitment to maintain its part in the gold pool. The linkage of the German-US security relationship to use of the dollar culminated in the so-called Blessing Memo of 1963, which locked in the quid pro quo and which, even though politically repudiated by the subsequent West German government, was maintained in spirit. Despite the United States' relative inflation and economic failings of the 1970s, no meaningful official sales of German dollar holdings took place until 1979. That, in turn, was when the Exchange Rate Mechanism (ERM) began, which involved a one-time shift away from dollar reserves to other European currencies to enable intra-ERM interventions and was not indicative of any ongoing shift out of dollars. Moreover, it was hardly a coincidence that concrete steps toward Economic and Monetary Union (EMU) with German encouragement began in earnest only in 1992, 13 years after the ERM began, once the Cold War had clearly ended, Germany had been successfully unified, and thus American troop withdrawals were imminent and the sense of security dependence diminished.[24]

Japan, which has never significantly reduced its sense of external threat from China and other regional powers and thus its perceived need for US troop presence on Japanese territory, has also never diversified its official reserves towards the euro to any meaningful degree. This reflects a dollar focus of yen policy, which continues 40 years after Japan began importing higher inflation from the United States, despite trade with the euro area and Asia growing faster than with the United States, and despite repeated bouts of asynchronous monetary policy from the Federal Reserve (see Volcker and Gyohten 1992). The security relationship be-

24. The popular notion in some places that EMU was a payoff of reduced German autonomy on monetary issues for French and other nations' acceptance of reunification is unsupported by the historical evidence on the motivations of the officials involved. This geopolitical consideration, that Germany no longer needed to keep Europe from creating a potential rival to the dollar, was far more evident.

tween the United States and Japan has contributed to this conservatism in Japan's exchange rate policy, though obviously export motivations also played a role to varying degrees in keeping the yen undervalued against the dollar. The security concerns, for example, overcame the Nixon Shock, when the 1971 Nixon-Connally decision to close the gold window hit Japan the hardest in macroeconomic terms and Japan did nothing then to diversify out of dollars or to target other currencies with its exchange rate. The recurring vague proposals by some ambitious Japanese officials that the yen could be internationalized or become a rival currency to the dollar always ran aground on Japan's security-driven desire not to offend the United States, right up through the Asian Monetary Fund fiasco of the mid-1990s.

Meanwhile, it was not a coincidence that Gaullist France, being far more interested than Germany or Japan in asserting its foreign policy independence from the United States and NATO, was the loudest and most demanding member in challenging the gold pool and the fixed dollar price of gold during the 1960s—although France actually faced both a far smaller amount of imported inflation from the United States than West Germany or Japan and a far greater domestic inflation risk from unanchoring the franc than the deutsche mark and yen would have faced.

The security motivations of France's currency arrangements also were primary in its management of relations with the Central African CFA Franc Zone, as detailed in Helleiner (2003) and Stasavage (2003a, 2003b). For example, "Countries such as Guinea and Mali, which sought to break away from the CFA zone [in the early 1960s], found their broader security, trade, aid, and other economic links to France severed by the French government in ways that were very costly" (Helleiner 2003, 75).[25] Mali exited the CFA zone in 1962, when it sought closer ties with the Soviet Union and separation from France. It returned to the zone in 1984 as part of the package of returning to the Western fold and reestablishing ties with France, with full reintegration only after a coup d'etat that credibly changed the leaning of the Malian regime. Similar political breaks regarding the orientation of foreign policy precipitated exits from the currency bloc by Madagascar and Mauritania in the 1970s. Thus, the security-driven arrangement of French CFA relations—driven by postcolonial foreign policy ties rather than any economic determinants—led to the significant share of euro peggers coming from that zone in Africa. In fact, the only non-EU membership candidate countries to have a euro peg are the CFA

25. Stasavage (2003a, 81) similarly "suggest[s] that calculations of Francophone African leaders [regarding CFA zone membership] have had as much to do with preserving the stability of their regimes…. Fear of losing privileged aid and security arrangements has raised the cost of exit for a number of governments that otherwise would have sought to establish their own currencies" in subsequent decades.

Franc Zone, the French Overseas Territories, Cape Verde, and Comoros (ECB 2007, 41).

Another substantial share of today's euroized or euro-pegging countries are the successor states to the former Republic of Yugoslavia, which is, of course, the scene of postwar Europe's largest and most geographically contiguous military intervention. So Kosovo and Montenegro have unilaterally euroized, Bosnia-Herzegovina has a euro-based currency board, and Croatia, Macedonia, and Serbia all have managed floats with reference to the euro. Other candidate and would-be candidate countries for EU membership, notably Turkey, have chosen not to peg to the euro, even as integration has deepened between the Turkish and euro area economies.

Looking at the list of current exchange rate arrangements in European economies (ECB 2007, IMF 2007), one sees a surprisingly large number of economies for which the economic case for euro pegging seems to be clear—and which have the legal obligation from EU membership to enter into ERM2 en route to the euro area—but which choose to do otherwise. These include Poland, which followed Sweden and the United Kingdom in refusing to formally tie in to the euro; Hungary, which had maintained a wide-band float tied to the euro outside of ERM2 and in late February 2008 exited that arrangement; and the Czech Republic and Romania, which float with a euro reference but nowhere close to a peg by the European Central Bank's own description.

The question is, why has membership in the euro area, which has delivered price stability, increasing financial depth, and trade linkages with these economies, not been attractive to economies that were already EU members before the crisis hit? It would appear that these countries' precrisis voluntary absence from the euro area or ERM2 is consistent with their strong desire for national autonomy and for foreign relations somewhat independent of the European Union—all of which was amply demonstrated by these countries' reluctance to ratify the Treaty of Nice and related constitutional measures for the European Union—rather than for lack of economic linkages. As European officials have stressed for the last nine years, the euro area is not just an economic club, and so it should be no surprise that those EU members feeling the most politically rather than economically distant are the ones to remain outside it.

Such decisions are hardly rare or limited to the euro area and its neighbors. Looking a little further back in time, it is worth considering the breakup of the ruble zone following the collapse of the Soviet Union in December 1991. Initially, 15 post-Soviet states were sharing a common currency, and the leading experts at the time, including the IMF, advised members against leaving the ruble zone on economic grounds (Åslund 1995). Given the trade ties between these economies, the spectre of hyperinflation or at least rapid devaluation, and the putative network externali-

ties of continued ruble usage—as well as the absence at that time of a euro with hope of membership to latch on to—the advice was sensible. Yet, the ruble zone fell apart less than two years later.

Abdelal (2001, 2003) provocatively points out that there was a clear cross-sectional difference in the monetary goals and strategies of the post-Soviet states and thus in their readiness to exit the currency union, which ran opposite to what economic criteria would predict. The Baltic states had some of the highest intraregional shares of total commerce within the ruble zone, and would suffer the largest negative terms-of-trade shock by exiting the zone (Michalopoulos and Tarr 1992), and yet were the first and most eager to exit. In contrast, the "Stans," which had similar or lower trade shares within the zone than the Baltic states but (as resource exporters) had the most to gain in terms of trade from exiting—as well as (ex post) the biggest risk of inflation from losing a credible anchor—were the most reluctant to exit. They in fact tried to keep the zone going, because politically they were the most inclined to maintain close relations with Russia and within the Commonwealth of Independent States.

So what does all this mean for the global role of the euro vis-à-vis the dollar? It means that given the limited desire and ability of the euro area members to project security relationships beyond their immediate neighborhood, there is little incentive for other countries around the world to shift their pegging, formal but also informal, from the dollar to the euro. US military spending was double that of the euro area even prior to the Iraq war, and, of course, it has surged with ill use since that time. But the point is that while some economic arguments suggest that this defense spending differential would likely hasten the euro's displacement of the dollar, through eroding savings and the current account balance, the geostrategic view suggests that at least some of that spending differential supports the dollar's global role.

Of course, most of the places in Europe with large US troop deployments are now in the euro area, but they all have seen significant declines in US troops stationed there since the pre-euro days. There are countries in Latin America and especially in Northeast Asia and the Persian Gulf where US security presence leads to dollar pegging—in contrast to the euro, dollar peggers are not limited to contiguous areas. While Kuwait indeed abandoned its dollar peg in March 2007, despite the huge troop buildup there, it is difficult to see Saudi Arabia and the other Gulf states following suit—in the extreme, one can imagine them revaluing against the dollar and/or moving to a highly managed float against the dollar, but the dollar would remain the reference currency for them. The continued prominent role of the dollar in Egypt and Turkey, when their trade and financial ties have shifted so strongly toward the euro area relative to the United States, is also consistent with their security priorities—represented by the large US troop deployments in those countries. In this context of ongoing military deployment, is it credible to think that Japan or South

Korea (or Taiwan) would move voluntarily to a renminbi peg, were such an option meaningful? Would anyone outside the potential members of the European Union and some Mediterranean neighbors consider initiating a euro peg?[26] No and no.

Even in the purely economic realm of foreign policy, the euro area leadership does not assert itself in a way that induces other countries to affiliate with its membership. The fragmented external representation of the euro area membership at the IMF and other international financial institutions reveals the constraints on the euro area's ability to respond to global developments—and thus to influence the environment of countries outside the euro area itself. This situation is likely driven by the perception of some member states that direct participation in the G-20 or representing a constituency in the IMF serves their national interest better than yielding that individual role for a stronger promotion of common euro area positions. Whatever the reason, the euro area leadership's inability to present a forceful common position means that it acts to maintain the status quo rather than to exert influence over the global agenda. It also shows the leadership's revealed preference for internal economic issues over global ones. "If I am not for myself, who will be for me?" If the euro area countries do not stand up for themselves together in international economic decisions, let alone in geopolitics more broadly, which outside countries will stand with them and be more inclined to take up their currency?

The Euro Area Response to Eastern Europe

The global financial crisis has if anything clearly displayed the geopolitical limitations on the euro's global role because the euro area authorities have failed to show leadership even as a regional anchor currency. A successful regional currency role for the euro would entail fulfilling responsibilities toward countries in the region that have adopted the euro as a monetary anchor or whose financial systems are partially euroized. Doing so would require correctly treating the current crisis as different from any one for which the Maastricht criteria were designed and flexibly interpreting those rules for the current challenges. Fulfilling the regional responsibilities toward Eastern Europe would also require actively trying to export stability from the euro area to potential and future members, rather than concentrating solely on the maximum protection of current members.

In a nutshell, however, the instinctive reaction of euro area policymakers has been to go into a defensive crouch when a number of Eastern European economies ran into significant difficulties as a result of the crisis.

26. Tunisia and Morocco do have basket pegs that de facto include both the euro and the dollar, where on an economic basis it would seem straightforward for them to peg solely to the euro if not to euroize.

While some adjustment funds have been provided via financial support of IMF programs for particular countries, the main response of the euro area has been to make sure that no country could conceive of accelerating the process of attaining euro area membership, of swapping or repoing assets in national currencies for euros, or of receiving any transfer of a meaningful amount of funds rather than a loan. The loud volume at which these self-imposed limits on euro area action were rapidly proclaimed conveyed clearly that euro area policymakers are insecure about the stability of the euro and treat that stability as hugely fragile. The impression given is hardly one to inspire confidence in the currency, and overrides any expectations by potential euro members of European solidarity or that the euro might entail a broader political commitment.

Thus, ironically, while most EU members outside the euro area have found the goal of euro adoption more attractive in light of the crisis, they have simultaneously seen euro area membership move farther away because of the euro area leadership's short-sighted response. Counting the sudden huge depreciation of all Eastern European currencies in autumn 2008—irrespective of their economic fundamentals—as strict observance of the ERM2 "waiting area" criterion for exchange rate stability is outright punitive. Similarly the literal enforcement of the debt and deficit criteria for euro membership without some out for crisis mitigation or bank recapitalization expenditures will be horribly contractionary, above and beyond anything enforced on euro member countries under the Stability and Growth Pact. György Szapáry's paper in chapter 3 documents the mounting difficulties for new member states of meeting the fiscal deficit and long-term interest rate criteria as a result of this exogenous shock from the crisis. As Jean Pisani-Ferry and I argue in the introduction to this volume, new members should be given a "more sensible, not easier, path [to euro entry]. At a minimum the Commission and Eurogroup should offset the ways in which the crisis has made euro accession more distant even for countries with good policies."

Yes, some Eastern European EU members—notably Hungary, Latvia, and Romania—pursued ill-advised policies leading to currency mismatched borrowing, unsustainable current account deficits, and eroding fiscal balances, while others did not. Some would say that one of their policymakers' reasons for misbehaving was the belief that they had a commitment from the euro area, at least regarding monetary stability. Since other new member states had at least as much of a plausible commitment, though, most of them had relatively better chances of meeting the criteria for membership, and they did not go on such binges, so that cannot be the whole story.[27] For purposes of this paper, the point is that disregard

27. We should probably be even more skeptical of this claim. Italy, Greece, and to a lesser degree Portugal all were brought into the euro area on the basis of some dubious measures and flexible interpretation of the criteria. The run-up to the launch of the euro did not credibly

for the losses suffered by the new member states in favor of what seems to maximize the stability for the current euro area members only unravels the elite ties and decreases the leverage that build up incentives for currency affiliation. Add in deep disappointment of expectations about intra-EU solidarity, as well as ever receding goal posts for euro entry, and we should expect some Eastern European countries to want to self-insure and diversify on the monetary front, much as East Asia did after feeling ill-served by the IMF in 1997–98.[28]

The euro area's narrowly economic and internally focused approach to the Eastern European situation actually raises a significant geopolitical risk for the European Union. The emphasis on country by country programs (when the IMF is needed) and strict assessment by fixed criteria (even for the exemplar governments) may be economically motivated, but it sets member state against member state in trying to distinguish themselves. The Czechs insist they are not the Hungarians, the Estonians that they are not the Latvians, the Bulgarians that they are not the Romanians, and that each must be treated accordingly. In a narrow rules-based mindset, such a separating equilibrium seems to make sense, for all that matters are the standards of the current euro area. In the current crisis, such inflexible discipline will inevitably lead to bad outcomes for some member states. At worst, the euro area would be pushing a number of Eastern member states down a very dangerous path economically and politically. So doing cannot but hurt the competitiveness and stability of their perhaps more economically virtuous immediate neighbors as well. Eroding intra-European solidarity thus will not just be damaging to the euro's regional role but also could eventually be harmful to European economic and political stability over the medium term.

"If I am only for myself, who am I?" The euro cannot become a global currency and an effective influence for stability, let alone one of the international financial architects, if it does not live up to its responsibilities as the world's most important regional currency.

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deter them into more disciplined behavior any more than it induced irresponsible behavior by Ireland, Austria, or the Netherlands. So the premise that enforcing rules, even under the guise of IMF conditionality, will force Hungary or Romania to see the error of their ways is empirically suspect.

28. It would be accurate to point out that, during the crises of the 1990s, the US government did little for its closely tied countries Mexico or South Korea beyond using the IMF, much as the euro area has done for Eastern Europe at present. It also misses the point. That neglect did result in some self-insurance and some distancing from the United States by affected countries, even as the economic fundamentals of their currency orientation did not change. Furthermore, the concern here is how geopolitics determines global currency usage, and, unlike the United States, the euro area does not offer national security support or have the advantages of currency incumbency to offset US levels of self-absorption.

Is this Crisis the Last Opportunity for the Euro to Step Up Globally?

Many observers have logically expressed concern that the recent turmoil may be the big event that pushes the dollar off its pedestal as the dominant international currency. Given the euro's apparent readiness on some purely economic criteria to be an alternative to the dollar, the euro's ascent to at least comparable status with the dollar has a surface and popular plausibility. Indeed, some observers predicted before the euro's launch that the euro would some day rival the dollar as a reserve currency, if not also as a private store of value and means of account, producing a bipolar monetary system.[29]

Some analysts (notably Bergsten 2005) have argued that for the euro to overcome the dollar's incumbency and network advantages, and attain codominance, the United States would have to commit a series of significant policy mistakes or suffer a balance-of-payments crisis. These analysts assume such a process to have been operating when the pound sterling lost its role to the dollar in the 1930s, when the United Kingdom's balance of payments and monetary discipline flagged. According to this view, the dollar, however, was spared such a fate during the 1970s only because neither the deutsche mark nor the yen was a viable alternative at the time. The lack of an alternative reserve currency at that time was supposedly the key factor in the dollar's ongoing global role. Again, if one looks solely at the basic economic factors like size and financial liquidity being in place for the euro at present, then to these analysts recent events indicate that the time is ripe for an accelerated switch to the euro, if not a formal regime change.

It is overdue and correct for American and other observers to shed any remnants of the excessive doubts about the euro's viability, which prevailed in many quarters since the mid-1990s, and to recognize that the euro has been an ample success within the monetary realm (Posen 2005, DG ECFIN 2008). But to argue that this crisis is the turning point for the euro to equal the dollar in, or displace the dollar from, its global role would be misguided. The source of all this euro optimism is too narrow and deterministic a focus on simple observable economic determinants of reserve currency holdings and reserves to the exclusion of other issues.[30]

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29. See Alogoskoufis and Portes (1992), Bergsten (1997a, 1997b), Portes and Rey (1998). Note that most of these economic analyses focus specifically on the reserve currency role, given availability (for the most part) of data on official currency holdings and the assumption that many other aspects of the dollar's or euro's usage would follow shifts in this usage. That is not to say that they dismiss other aspects such as pegging by third countries or private-sector invoicing, but they do not focus on them. They do not consider non-economic aspects of these dynamics.

30. While a large literature in political science has emerged in the last 20 years on the political

The mainstream economics literature on currency status admits as much by its repeated frustration in theoretically accounting for the observed behavior of dollar holders in the public sector. It is just as troubling in the private sector, given the apparent willingness of foreign investors to give the United States an "exorbitant privilege" via accepting low-yielding US treasuries and other dollar-denominated investments.[31]

This is why Hausmann and Sturzenegger (2006) were fully justified in invoking the physics analogy of unobservable "dark matter" to explain the gap in relative returns for dollar holders.[32] The United States' global political leadership in security, commercial, and even cultural affairs has a critical impact on dollar usage in the monetary realm and constitutes a significant share of this dark matter. The euro area does not have any of this dark matter with which to exert a gravitational pull on other countries beyond the basic economic factors. It is no coincidence that Russia, trying to tout independence from the United States and woo Europe politically, is the only one of the major emerging markets to actively move into the euro. This holds true today, even when all substantial reserve accumulators—particularly China—face substantial financial expense and risk from not reallocating their portfolios, given their dollar exposure on accumulated reserves.

The crisis itself will do nothing to increase the geopolitical significance or attraction of the euro area. In addition to the likely frustration of

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economy of monetary policy, the focus has tended to be on monetary statecraft, the tactical use of exchange rate policy in specific instances (e.g., Henning 1994, Kirshner 1993). The few who deal with currency choice end up emphasizing the same trio of economic determinants of reserve status as typical in economics. A partial exception are the essays collected in Andrews (2006) and Kirshner (2003) and the contributions therein. More provocative are the broader historical syntheses of Maier (2006) and Strange (1996) on sources of American power, which take currency usage as part of the package.

31. As argued in Posen (2008): "The missing mass problem in pure economic explanations of currency behavior is why Chinn and Frankel (2007) have to include such a large role for imputed "network" effects via lags, even though that labeling does little work…. [It] is also why Andrew Rose (2007) in his latest research on exits from currency unions reveals that what shapes currency unions around the world is not what the received theory predicts…the most striking facts are that aggregate macroeconomic features of the economy do a poor job in predicting currency union exits…. And this gap is why Gourinchas and Rey (2007) and Curcuru, Dvorak, and Warnock (2008) debate whether a differential financial return actually exists for US holders of foreign assets versus foreign holders of US assets…. The fact that long-term holdings of US dollar assets by foreigners have been a losing proposition in relative as well as absolute terms has to be taken at face value at some point: These assets were and are held, at least in part, for nonfinancial reasons." Those reasons are primarily the geopolitical factors set out in this paper.

32. Although closer analysis indicated that Hausmann and Sturzenegger's specific contention about intangibles leading to high profits from US foreign direct investment abroad did not hold up as the source of that dark matter. See Gros (2006), Higgins, Klitgaard, and Tille (2005), and Setser (2006) for persuasive critiques of that contention.

the Eastern European economies already integrated into the euro region discussed in the preceding section, neither economic growth nor financial stability in the euro area is going to be visibly better than that of the United States over the 2008–2010 period. In fact, for a number of reasons, recovery is likely to be slower in the euro area, and most countries will have debt overhangs and asset price declines more persistent than in the United States. It is worth noting that the euro area's performance as a real economy has not been so compelling and was at least as inflated by unsustainable growth of late as the United States.[33] The best available sectoral analysis of productivity developments in the euro area economies suggests that an increase in productivity growth did not drive the recent boom in Europe.[34] In fact, the boom could be cloaking a continued downward trend in productivity growth, since it came through increased input of low-skilled labor. In any event, absent improved productivity growth, the boom is not based on a sustainable source of growth. Baily (2008) comes to a similar assessment based on independent corporate studies and on the breakdown of Okun's law relationships when the recent employment increase accompanied rather slow growth.

Why does this matter for the present moment as the opportunity for the euro to rise to global currency status? Because it indicates that the current relative parity in the sizes of the euro area and US economies is unlikely to last. The demographics continue to favor the United States, both on birth rate and on immigration. Even allowing for a decline in the US productivity growth trend, the gap between euro area and US productivity growth rates will remain sizable for the coming years as well. Thus, as in Posen (2004), the US economy will gain in size relative to the euro area, even as it shrinks relative to China and world GDP as a whole—and we know that relative size of economies is an important determinant of currency status. Add demographic trends to relative economic size, and the potential for the euro area to project power in geostrategic affairs is also on a downward trend, even if its members committed to so doing. There may be even less appetite for consolidated external EU or euro area representation now than before the crisis. This is the natural, if unfortunate, result of political pressures to look after a nation's parochial interests in times of hardship.

33. Among monetary accomplishments beyond maintenance of price stability are good management to date of the financial turmoil, the exertion of greater unity and voice by the ECB Governing Council vis-à-vis the member central banks, the (slight) consolidation of chairs and shares in the international financial institutions, and the successful support of continued financial deepening in euro area bond markets. See DG ECFIN (2008), Posen (2005), and Pisani-Ferry et al. (2008) for summary positive assessments of the euro in its own terms.

34. See the official discussions of the EU-KLEMS database research in ECB (2008) and DG ECFIN (2008).

"If not now, when?" If the euro cannot expand its global role through political initiative when the gap in economic factors and relative performance between the euro area and the United States has temporarily narrowed, and the demand for monetary leadership is high, it is unlikely to ever do so.

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To reiterate a point made by others in this volume, competition with the dollar for monetary leadership should not be a motivation for euro area policies.[35] The message of this paper is not that the euro area policymakers should pursue an expanded regional strategy, let alone more assertive behavior in foreign and security policy for the sake of having the euro become a more global currency. The message is an empirical one about the noneconomic fundamentals limiting the euro's role internationally: Because the euro area is not offering to the states behind potentially associated currencies a broader range of security relationships in general, it will not attract as many adherents as the economic factors would seem to suggest. The defensive rather than affirmative response of the euro area leadership to the crisis in Eastern Europe, and the poor (or worse) economic performance of most of the euro area compared with that of the United States as a result of the crisis, will reinforce this limitation.

But this positive argument that the euro is unlikely to become a global currency and real alternative to the dollar does not say that US monetary hegemony is automatic. In fact, I argue that the causality runs at least as much from security leadership to economic leadership as in the other direction; there need not be a ready alternative currency for the dollar to lose its global leadership. Given the euro's limitations, fragmentation of the global monetary system, rather than a smooth shift to a viable dollar rival, is more likely to emerge, should the US mistakes lead to dollar failure. In such a situation, there would be an erosion of easy currency convertibility between currency zones, a shift of reserves toward gold and other "hard" commodities, and lesser cross-border flows of capital, all inducing greater macroeconomic instability. This scenario is, of course, along the lines of Kindleberger's (1986) interpretation of the 1930s, when there was no monetary leadership to be had and the world trading system collapsed as a result. While things are unlikely to get that bad, since we are emerging from the worst of the crisis already, no one should view the failure of the euro to rise to global currency status as costless—either for Europe or for the world.

The ECB's founding chief economist, Otmar Issing (2009), claims on the basis of the euro's experience that you can have a currency without

35. See the contributions to this volume by Bini Smaghi (chapter 1), Liikanen (chapter 4), Pisani-Ferry and Posen (introduction), and Summers (chapter 4).

a state. Perhaps, at least in good times. But the euro's record also demonstrates that you certainly cannot have a *global currency* without a state. And if no other nation-state is dominant enough in geopolitics to provide a global currency, and the international framework behind it, that stateless currency may not do very well even for its own region.

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