

# Global European Banks and the Financial Crisis

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This paper reviews some of the recent studies on international capital flows with a focus on the role of European global banks. It presents a revision to the commonly held “global saving glut” view that East Asian economies (along with oil-rich nations) were the dominant suppliers of capital that fueled the asset price boom in many parts of the world in the early 2000s. It argues that the role of funding costs and a “liberal” regulatory regime that allowed for an unprecedented expansion of the balance sheets of European banks was no less important. Finally, we describe the aftermath of the crisis in terms of some of the challenges faced by Europe as a whole and European banks in particular. (JEL F32, G15, G21, E44)

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**A** significant economic slowdown currently plagues the world economy, especially the countries in Europe. This slowdown comes in the aftermath of what has been widely regarded as an ongoing global financial turmoil that has spanned the past half decade (2007-12). The economic woes are especially severe in the euro zone, where countries battle not only an economic recession, but also asset price deflation and a burgeoning debt crisis.<sup>1</sup> Given the enormity of the economic crisis in the euro zone and the length and breadth of its impact, different studies have emphasized different aspects of the crisis.

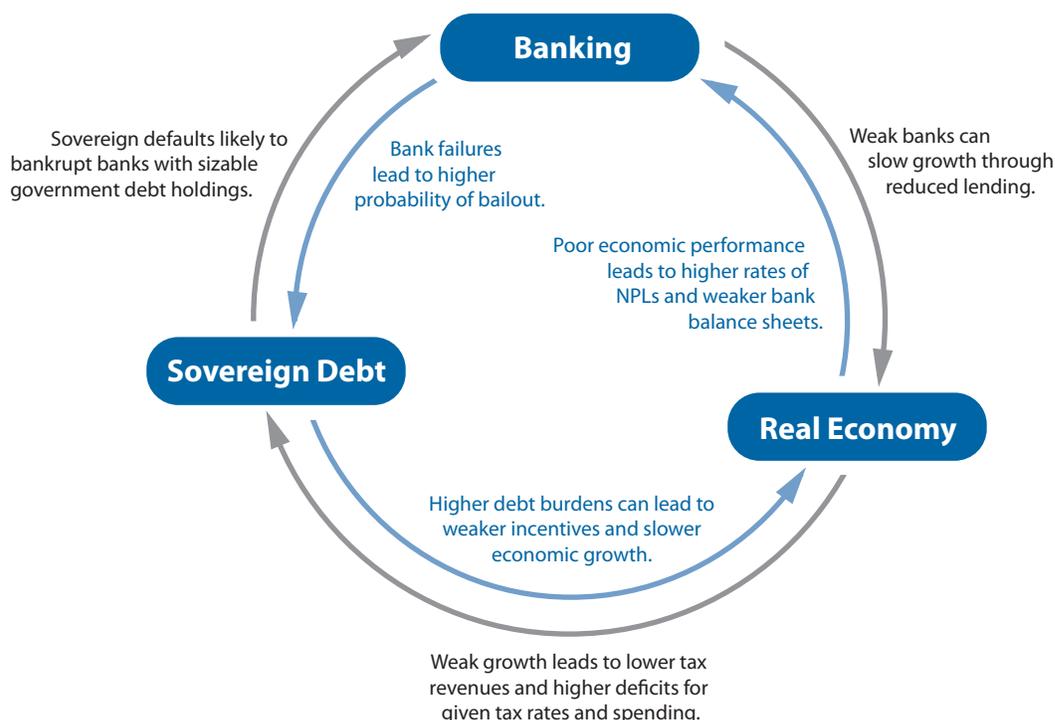
This paper presents a brief overview of the role played by global finance in the crisis in the euro zone. In particular, we point to evidence showing the role played by global European banks in financing credit and asset price booms not only in some European countries but also in the United States. In addition, we point to three problems faced by European banking in the aftermath of the classic boom-bust scenario: deleveraging, bailout problems, and capital flight. We draw on a variety of economic research and policy papers to present a nontechnical summary of some key aspects of the European banking crisis. In conclusion, this overview emphasizes the need for better regulation of global banks and financial institutions. Needless to say, our approach is highly selective, both in its depth and scope. Where possible, we refer the reader to recent in-depth work on the topic.

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**Figure 1**

**Interlocking Crises**



NOTE: NPLs, nonperforming loans.

SOURCE: Shambaugh (2012).

## EUROPE’S THREE CRISES

Our starting point of analyzing the crisis in the euro zone is the hypothesis of three interlocking crises put forward by Shambaugh (2012). The first is an economic recession, which Shambaugh argues is a “growth crisis.” The second is a banking crisis, and the third is a sovereign debt crisis. The notion of multiple crises is not new: Since the 1980s, several studies have highlighted the joint occurrence of an internal financial crisis coupled with an external balance of payments crisis for several emerging markets and developing countries (see, for example, Kaminsky and Reinhart, 1999). Emerging markets in Latin America and Asia have faced such twin crises with sharp devaluations in their local currency.

The scenario is somewhat different for the euro zone. Unlike Latin American and Asian countries, the bulk of whose external debt was not denominated in their domestic currency, much of the (private and public) debt obligations of the troubled countries of the euro zone is held in euros. Of course, the euro is the domestic currency of not just the troubled countries but also other nations in the euro zone. Moreover, while debt obligations of Asian and Latin American economies in the mid-1990s were widely held outside the respective countries, private

and public debt obligations of the troubled countries of the euro zone were held mostly by creditors in other parts of the euro zone.<sup>2</sup> A direct result of this situation has been that, despite all the turmoil in the debt markets, the depreciation in the euro has not been anywhere close to that witnessed in Latin America and Asia during the mid-1990s.<sup>3</sup>

In the absence of any exchange rate adjustment, the twin crises in banking and balance of payments resemble the twin crises in banking and sovereign debt (Figure 1) (Shambaugh, 2012). The interlocking features of the three crises are shown as forces that reinforce the downward spiral.<sup>4</sup> These channels are illustrated by the arrows in Figure 1 to explain the three crises in the euro zone: sovereign debt, economic performance, and the banking system. Poor economic performance leads to nonperforming loans and lower tax revenues. Nonperforming loans shrink bank balance sheets, which in turn has real effects on economic growth through the balance sheet channel (Bernanke and Gertler, 1995).<sup>5</sup> In extreme cases, nonperforming loans can end in bank failures, leading to bailouts by the respective sovereigns (in the form of recapitalization of existing banks, redemptions on publicly funded deposit insurance, or both) (Reinhart and Rogoff, 2009). Large bailouts coupled with lower tax revenues put extreme stress on public finances. In turn, a higher debt burden reduces economic growth because of weaker incentives (higher impending tax rates) or reduced public investment (Reinhart and Rogoff, 2010, and Reinhart, Reinhart, and Rogoff, 2012). Moreover, if sovereigns default on their debt, it can affect the health of financial institutions with sizable sovereign debt holdings.

In this article, our focus is mainly on Europe's banking system. For overviews on the dynamics of public debt sustainability and its implication for the sovereign debt crises in Europe, see Contessi (2012) and Martin and Waller (2012).

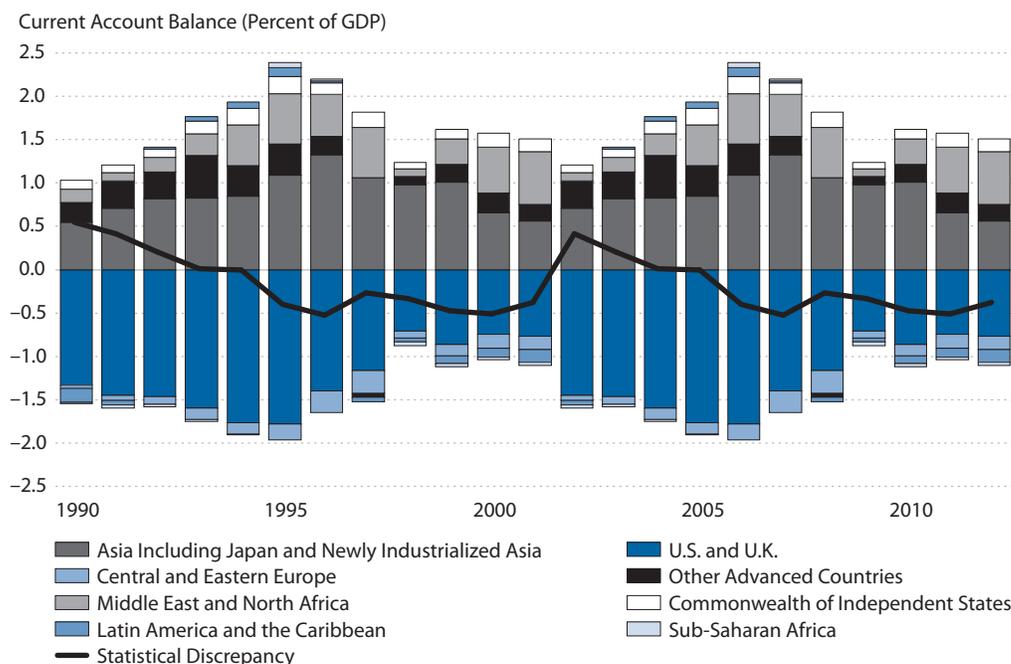
## CURRENT ACCOUNT IMBALANCES AND THE IMPORTANCE OF GROSS CAPITAL FLOWS

The key to understanding the banking system in Europe is to first understand the role of major banks in the global financial system. With this in mind, we first review some facts and features of the trends in global financial flows. As noted by Obstfeld (2012), “The circumstantial evidence is that the crisis was preceded by historically large ‘global imbalances’ in current accounts, including big deficits run by a number of industrial economies that subsequently came to grief (including the United States)” (p. 2). This is true not only for the global economy in general (as shown in Figure 2) but also the euro zone in particular (not shown here). In the case of the euro zone, it was the peripheral southern European countries such as Greece, Italy, Portugal, and Spain that ran up current account deficits.

Among the proximate causes of the housing boom and bust scenario in many deficit countries is the availability of cheap credit during the early 2000s. The dominant view in this regard has been the hypothesis of a global saving glut (GSG) that attributes this availability of cheap credit to events outside U.S. borders—in particular, the role played by emerging markets in East Asia and oil-producing nations as suppliers of capital (Bernanke, 2005). While its earlier version stressed the role of net imbalances (see boxed insert), the revised GSG view has been augmented to stress the importance of gross capital flows (Bernanke et al., 2011; Borio and Disyatat, 2011). The main argument behind the revised GSG view is presented as follows:

**Figure 2**

**Global Current Account Imbalances**



SOURCE: IMF and Obstfeld (2012).

First, the growth in global capital flows (both inflows and outflows) *among* developed countries has dwarfed the current account positions. For the United States since the mid-1990s, the increase in net claims on the country, which mirrors the current account deficit, was about three times smaller than the change in gross claims (Borio and Disyatat, 2011). Second, current account positions cannot be viewed as important drivers of cross-border capital flows among advanced countries—gross flows reflect substantial capital outflows (investments by U.S. residents outside the country) from the United States as well (Figure 3A). Third, whereas the GSG view emphasizes the role of the official sector—larger accumulation of reserves by foreign (East Asian) central banks—the data reveal that the bulk of gross inflows into the United States originated in the private sector. Figure 3B shows the significant expansion of foreign purchases of U.S. (non-Treasury) securities and U.S. bank liabilities to nonresidents. Fourth, the most important source of capital inflow was Europe, in particular the United Kingdom, which ran current account deficits—not surpluses—for much of this period, contrary to the GSG view. Lastly, net capital flows do not capture the severe disruption in cross-border capital flows following the crisis. Figure 3A shows the complete collapse of the gross capital flows for 2008, which truly reflects the retrenchment in flows across advanced economies compared with the small changes in net flows in terms of the current account balance.

The revised GSG view emphasizes the importance of the gross capital flows in explaining the boom in credit conditions of most advanced economies during 1997-2007 (see Bernanke et al.,

### The Global Saving Glut

A “current account” is the difference between a country’s exports of goods and services and its imports (including income receipts from assets held abroad). Using textbook national income accounting, this translates into the difference between a country’s savings and domestic investment. Therefore, countries with current account deficits can invest in excess of their savings—as has been the case for the United States. The U.S. current account deficit rose as a percentage of gross domestic product (GDP) from a relatively modest \$125 billion (1.5 percent of GDP) in 1996 to \$800 billion in 2006 (about 6 percent of GDP). Around the same time, there was a significant easing of credit conditions while the United States enjoyed an unprecedented boom in the price of real estate.\*

This scenario led several economists, the foremost being Federal Reserve Chairman Ben Bernanke (2005, 2007), to put forward the hypothesis popularly known as the “global saving glut” (GSG). The basic idea is that much of the easing of credit conditions in the United States was not exclusively the result of domestic factors, but rather a function of forces beyond U.S. borders. In the GSG framework, this was precipitated by developing East Asian and oil-exporting countries running substantial current account surpluses. Countries running surpluses provide credit to those running deficits; or, stated differently, the excess of savings over investment from surplus countries is channeled to deficit countries, where the domestic investment is greater than domestic savings. In the GSG view, the capital flows from emerging markets were flowing into the United States, making credit cheap and fueling the asset price boom.

Economists have essentially provided two proximate causes for this phenomenon, both originating in the financial crises in East Asia and other emerging markets during the second half of the 1990s. First, Bernanke (2005) cites the East Asian financial crises of 1997-98 as a catalyst for subsequent shifts in the pattern of capital flows. In response to large capital outflows during the crises, many of the emerging market Asian nations began a strategy of being net exporters of financial capital. In some cases, this happened as the result of a large buildup of foreign reserves intended to create “‘war chests’ of foreign reserves...as a buffer against potential capital outflows.”

Second, Caballero (2009) points to the fact that, as a result of prior crises in emerging markets, these surplus nations also “had an insatiable demand for safe debt instruments that put an enormous pressure on the U.S. financial system” (p. 1). In effect, the U.S. financial sector used financial engineering to create “safe” (prime) assets from the generation and securitization of a significantly large number of assets of poorer (subprime) quality. This, in turn, exposed the U.S. economy to systemic panic.

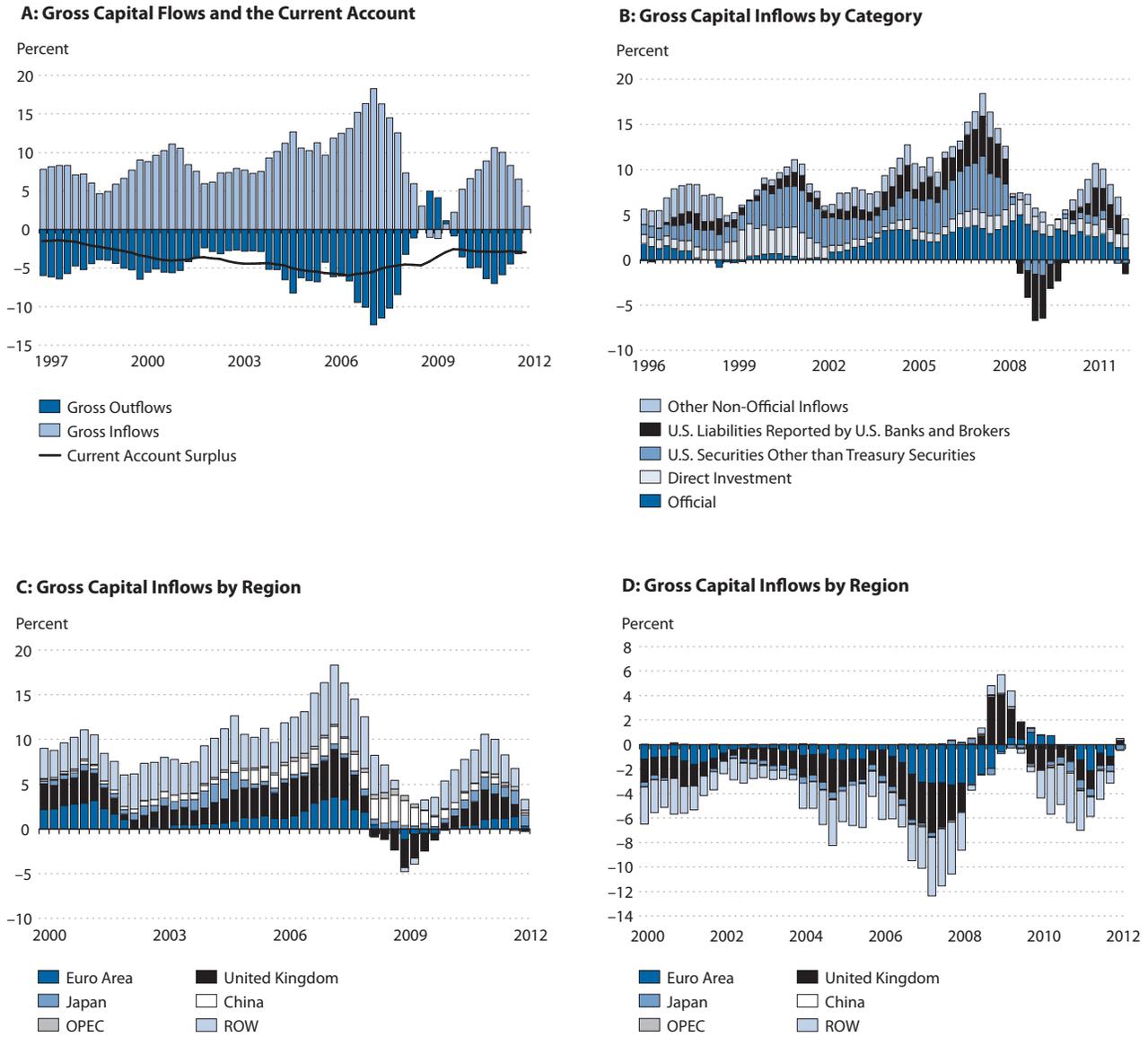
Why did surplus nations focus on the United States as the financial destination for capital flows? Bernanke (2005) offers a few suggestions: First, this was due in part to the special status of the dollar as an international reserve currency. This is in no small measure a result of the relatively large, stable, and liquid market for U.S. Treasury securities. Second, the perceived depth and the sophistication of U.S. financial markets may have played a significant role in attracting these investors. Lastly, and perhaps more important to our analysis here, other advanced industrial countries were also the beneficiaries of such capital flows. They include Spain, the United Kingdom, France, and Italy but not Germany and Japan. Importantly, as pointed out in Bernanke (2005), “countries whose current accounts have moved toward deficit have generally experienced substantial housing appreciation and increases in household wealth, while Germany and Japan—whose economies have been growing slowly despite very low interest rates—have not.”

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\* Some observers have linked this to U.S. monetary policy during the early 2000s. The Federal Reserve lowered the target federal funds rate from a high of 6.5 percent in early January 2001 to just 1 percent in January 2002. The Federal Open Market Committee statement released on August 12, 2003, announced that “policy accommodation can be maintained for a considerable period” and the low rate environment continued well into 2004.

**Figure 3**

**U.S. Capital Flows as a Percent of GDP**



NOTE: ROW, rest of world.

SOURCE: Bureau of Economic Research and Borio and Disyatat (2011).

2011; Shin, 2012; Obstfeld, 2012; Gourinchas, 2012). Both Gourinchas (2012) and Shin (2012) emphasize the role of global banks, especially global European banks, in the origination and propagation of the gross capital flows and credit boom conditions in most advanced economies during this period. In this regard, Milesi-Ferretti et al. (2010) and Bertaut et al. (2011) made a significant effort in collecting data on cross-border gross and net financial flows before the onset of the crisis.

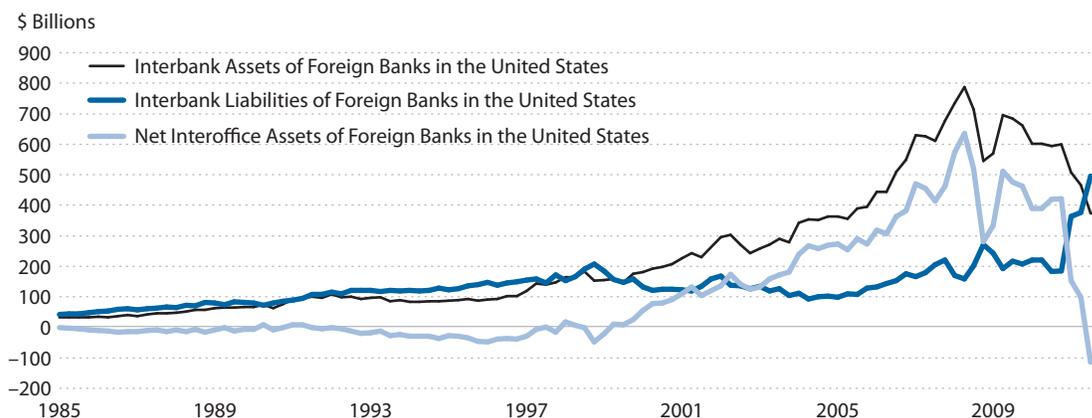
These data reveal two important facts of the crisis. First, the holdings of East Asian emerging economies with surpluses were largely confined to Treasury securities and agency debt (which then had an implicit government guarantee). More importantly, private-label securities and other holdings of U.S. “toxic” assets were concentrated in highly leveraged financial institutions in advanced economies such as Germany, France, Switzerland, and the United Kingdom—in short, the global European banks. This corroborates the view in Borio and Disyatat (2011) that almost half of all foreign holdings of U.S. securities immediately before the crisis were held in Europe.

## THE “GLOBAL BANKING GLUT”

The previous sections highlight the role played by the European financial system in fueling the credit boom in the United States. However, the details are missing: How did European banks invest in arguably “toxic” private-label U.S. securities? Why were only European banks involved (as opposed to banks in other parts of the world)? Finally, why did the banks concentrate their holdings in the United States (and not other advanced countries)? To the best of our knowledge, clear answers to these questions would require further research.<sup>6</sup> Nevertheless, this section attempts to shed light on some of the explanations offered.

Shin (2012) and Bruno and Shin (2012a,b) focus on the role played by large European banks. These banks are not only systemically important but also significantly large—their size (total assets) can be almost as large as, and in some cases larger than, the GDP of the host nations. These studies allude to three factors that fueled a lending boom accompanied by greater risk-taking. The factors are (i) easy monetary policy that lowers funding costs for banks, (ii) adoption of a regulatory structure that allows higher leverage, and (iii) an asset price boom and real appreciation of the currency that strengthens the balance sheet position of borrowers.

Bruno and Shin (2012b) point to the “remarkable degree of synchronization” in the cross-border lending boom across a wide range of countries, including Australia, Turkey, Spain, Ireland, Egypt, Chile, and Korea. More important, this run-up to cross-border lending closely mirrors an increase in wholesale funding raised by global banks, primarily from U.S. money markets, around the same time. Evidence for this form of funding is provided by Baba, McCauley, and Ramaswamy (2009), who find that by mid-2008, just before the collapse of Lehman Brothers, over 40 percent of the assets of U.S. prime money market funds were short-term obligations of foreign banks, with obligations of global European banks representing the largest share. The funding was channeled through the branches of 161 foreign banks in the United States to their respective headquarters. Around September 2009, the total sum raised from U.S. branches was in excess of a trillion dollars; and, with respect to their headquarters, branches had a net positive position of roughly \$468 billion (Bank for International Settlements [BIS], 2011). As shown

**Figure 4****Interoffice Assets of Foreign Banks in the United States**

NOTE: Interbank assets and liabilities represent claims and liabilities of branches of foreign banks in the United States on the head office of the banks.

SOURCE: Federal Reserve, series on "Assets and Liabilities of U.S. Branches and Agencies of Foreign Banks" via Shin (2012).

in Figure 4, branches of foreign banks have been net recipients of funds from their headquarters since the 1980s. The situation changed drastically after 2000, when these branches became net suppliers of funds to their headquarters. In short, cheap funding in U.S. money markets enabled an unprecedented expansion of the balance sheets of global European banks.

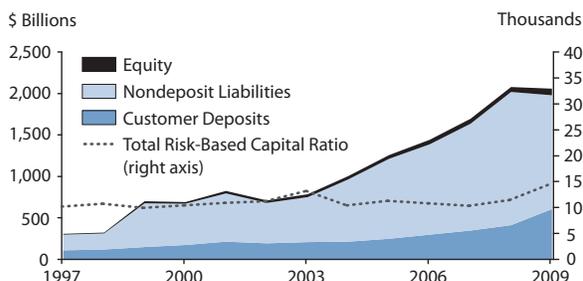
In conjunction with the liability side, the asset side of these global European banks also focused on U.S. securities. Using consolidated banking statistics from the BIS, Shin (2012) showed that European banks had significantly high foreign claims on U.S. counterparties. While these were predominantly U.K. and Swiss banks, French and German banks also had a nontrivial share of foreign claims on U.S. counterparties.<sup>7</sup> According to some estimates, U.S. dollar assets of euro area banks amounted to \$3.2 trillion at the end of 2010:Q4 (Coffey et al., 2009).

Taken together with the data compiled in Milesi-Ferretti et al. (2010), this suggests a unique form of financial intermediation that was first pointed out by Shin (2012): Global European banks fulfilled maturity transformation by borrowing funds from U.S. money markets and then used these funds in turn to invest in securities that were created by the shadow banking system in the United States.<sup>8</sup> Because both assets and liabilities are denominated in dollars, the exchange rate risk is minimal. And although the gross positions on either side of the balance sheet are fairly large, the net position—the one that is reflected in terms of balance of payments—is small by comparison.

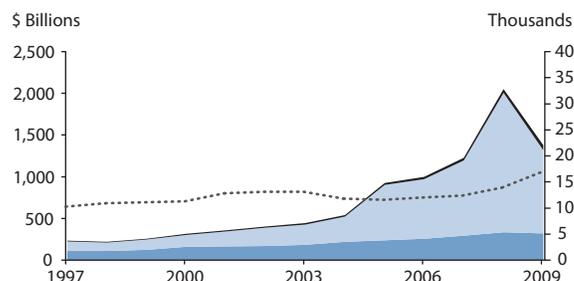
In the process of increasing maturity transformation, the global European banks expanded their balance sheets and significantly increased leverage—to an extent not witnessed previously under a regulated banking regime. Motivations to increase leverage are almost always suboptimal in the long run and had debilitating consequences not just for the bank but often the entire financial system. As Admati et al. (2010) observe, "Given continual incentives to increase leverage and shorten its maturity to usurp prior creditors, a bank's capital structure, as it evolves over

**Figure 5**  
**Selected European Bank Balance Sheets**

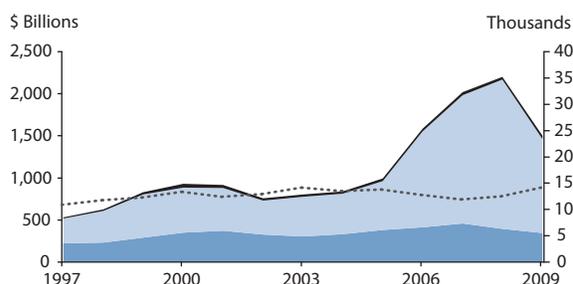
**BNP Paribas**



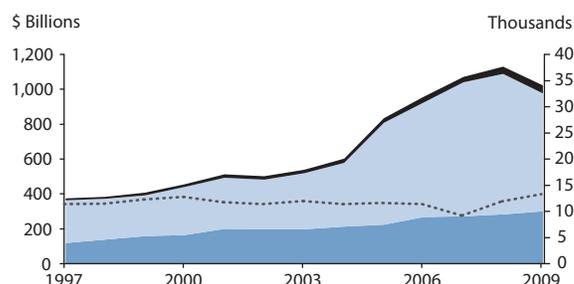
**Barclays**



**Deutsche Bank**



**Société Générale Group**



SOURCE: Bloomberg Notes: As-reported data are subject to changes in reporting standards.

time, is likely to have leverage that is excessive even from the narrow perspective of what is good for the bank and its shareholders (except, of course, for government subsidies of debt)” (p. 4).

There are noticeable differences between the leverage ratios of European banks and their U.S. counterparts. These differences have been attributed primarily to two factors: the adoption of different accounting standards and the differences in the regulatory landscape for banks.<sup>2</sup> Notwithstanding the differences in accounting standards, much of the higher leverage has been attributed to regulation. Shin (2012) argues that while regulators in both the United States and Europe may have allowed banks to increase leverage, the incentives were stronger in Europe because of “the permissive bank risk management practices epitomized in the Basel II proposals.” European regulators’ whole-hearted adoption of the Basel II proposals under the European Union’s (EU) Capital Adequacy Directive permitted these banks to expand their balance sheets rapidly. As Avramova and Le Leslé (2012) note, “European banks tend to gravitate towards assets that carry a low risk weight, allowing them to report strong capital ratios under the Basel II risk-weighted framework. Conversely, in the United States, where the emphasis beyond Basel I has long been on the leverage ratio, banks tend to focus more on assets that carry attractive returns,

since they have a more binding leverage constraint and cannot over-accumulate assets” (pp. 14-15).

Borrowing from Shin (2012), we show the expansion in bank lending and the unprecedented growth of leverage for some of the top global European banks. Figure 5 shows the balance sheet expansions of BNP Paribas, Barclays, Deutsche Bank, and Société Générale, respectively. First, increases in leverage were the dominant cause behind the expansion of the balance sheet for these banks. The thin black (top) segment shows bank capital for each bank—and it is significantly smaller than the other bank liabilities in comparison. Second, the segment of liabilities that records the greatest increase over this period are sources of wholesale funding, including the U.S. money markets as explained previously. Third, and most important, increases in the total risk-based capital ratios (dotted lines in Figure 5) remain fairly modest in comparison with the steep increases in the expansion of the balance sheet. Shin argues that such modest increases in measured risk implied that global European banks could expand their balance sheets without significantly increasing their capital.

Bruno and Shin (2012b) and Shin (2012) argue that two factors may have reduced risk premiums for bank lending. The first was asset price and exchange rate appreciation, which improves balance sheets of households and firms, thereby improving not just their creditworthiness but also the loan quality of the bank portfolio. The other was the introduction of the euro, which reduced risk premia not just on sovereign debt but also on private debt in countries with weaker growth and weaker banking systems. In turn, the reduced risk premia can promote more risk-taking and lending by banks because of perceived improvements in loan portfolios (Borio and Zhu, 2008; Bruno and Shin, 2012b).

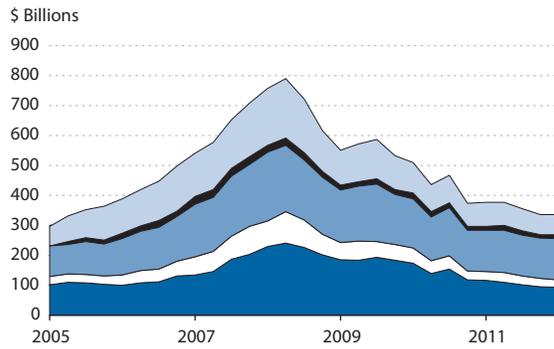
Lastly, it is important to note that global European banks did not merely restrict their lending to the United States. The introduction of the euro and its appreciation vis-à-vis other major currencies meant a reduction in risk premia for these banks, which increased lending both within and outside Europe. Ireland, Spain, and the United Kingdom, with significantly high asset price appreciation, were the major beneficiaries of such financial inflows. Figure 6 shows that most of the peripheral countries of the euro zone (namely, Greece, Ireland, Italy, Portugal, and Spain) witnessed significant increases in capital inflows not just from banks in the core of the euro zone (namely, France and Germany) but also from U.K. and Swiss banks. Almost all of these inflows of capital peak around 2007-08—the time of the financial crisis in the United States. More importantly, most of the peripheral countries witnessed a significant increase in asset prices. In particular, there is wide agreement that Spain and Ireland witnessed housing bubbles (for example, see Conefrey and FitzGerald, 2010, and Mayer, 2011).

Recent empirical work has shown that low lending costs lead to increased risk-taking in these peripheral economies. For example, using comprehensive Spanish credit registry data, Jimenez et al. (2011) show that lower short-term funding rates for banks encourage increased risk-taking and credit expansion, particularly for banks with lower levels of capital. Similar studies abound for the greater euro area as well (Maddaloni and Peydró, 2011). This evidence raises some questions at the macro level: If many of the proximate causes behind the credit boom and asset price increases can be attributed to bank risk-taking, why is the credit boom confined to some countries, such as Spain, and not others, such as Germany? For example, Puri, Rocholl, and Steffen (2011) observe significant exposure of German Landesbanks to securities backed by

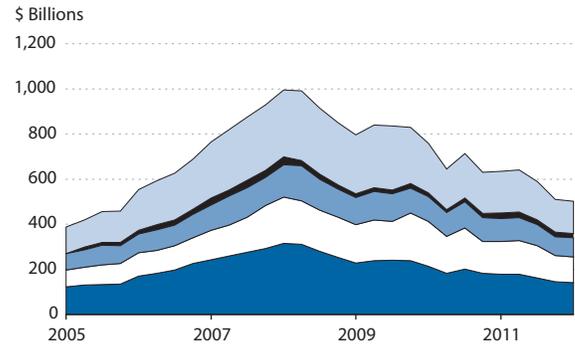
**Figure 6**

**Claims of European Banks on Counterparties in Home Country**

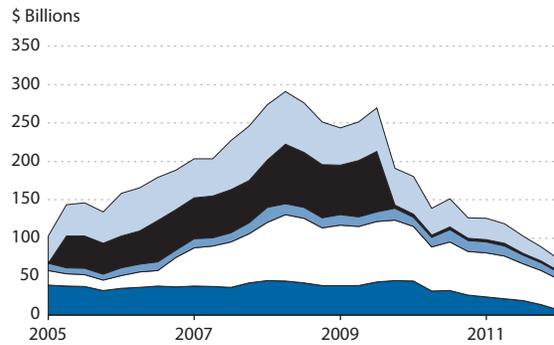
**Ireland**



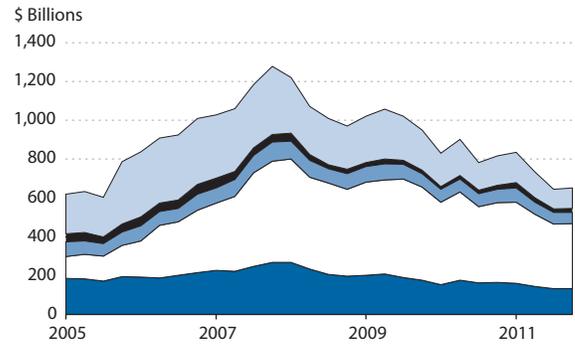
**Spain**



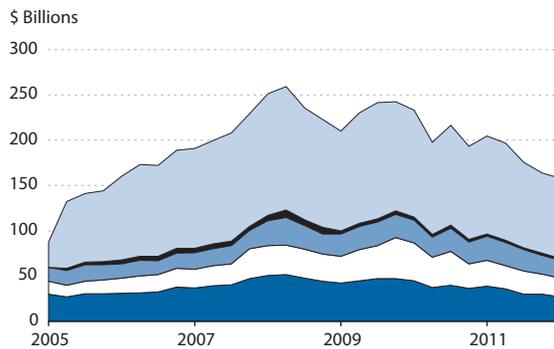
**Greece**



**Italy**



**Portugal**



- Other European BIS
- Switzerland
- United Kingdom
- France
- Germany

SOURCE: BIS consolidated banking statistics, Table 9D.

U.S. subprime mortgages; yet, it appears that Germany, the host country to these banks, avoided a commensurate mortgage boom altogether. Put differently, why did the same banks choose to take on more risk in some markets, particularly those that witnessed large asset price appreciation, and not others?

## BOOM AND BUST

As has been widely recorded, there was the inevitable bust after the boom, in which the very same countries (such as the United States, United Kingdom, Spain, and Ireland) that witnessed credit booms now had increasing loan defaults and sharp declines in asset prices. These declines in asset prices were also unprecedented and set in motion a cycle of declining prices, nonperforming assets, and deleveraging by banks. Again, this was stronger for the European global banks and created a greater impact on the real economy in Europe than it did in the United States.

The most significant event of the bust was the collapse of Lehman Brothers, the U.S. investment bank. Acharya and Schnabl (2010) have argued that the immediate impact of the Lehman collapse was felt in the asset-backed commercial paper (ABCP) market.<sup>10</sup> The ABCP conduits relied on their sponsors—the large global banks—for liquidity and credit support: ABCP conduits face rollover risk in that they have to continuously roll over the maturing paper by issuing short-term debt.<sup>11</sup> The major investors in the ABCP market at the time were money market funds. Investor runs plagued money market funds immediately following the Lehman episode in September 2008. When the cash flows from the ABCP dried up, these large global banks were on the hook for the outstanding commercial paper and, additionally, were subject to a bank run on the short-term funding markets.

Needless to say, European global banks were not spared the rapid deleveraging that ensued.<sup>12</sup> As a result, many European banks faced shortages in dollar funding—a fact that became widely known after the Federal Reserve released the identities of the beneficiaries of the Term Auction Facility (TAF) program (see Coffey et al., 2009, for details). Additionally, the Federal Reserve also opened swap lines with the European Central Bank (ECB) to provide additional liquidity support for European banks.

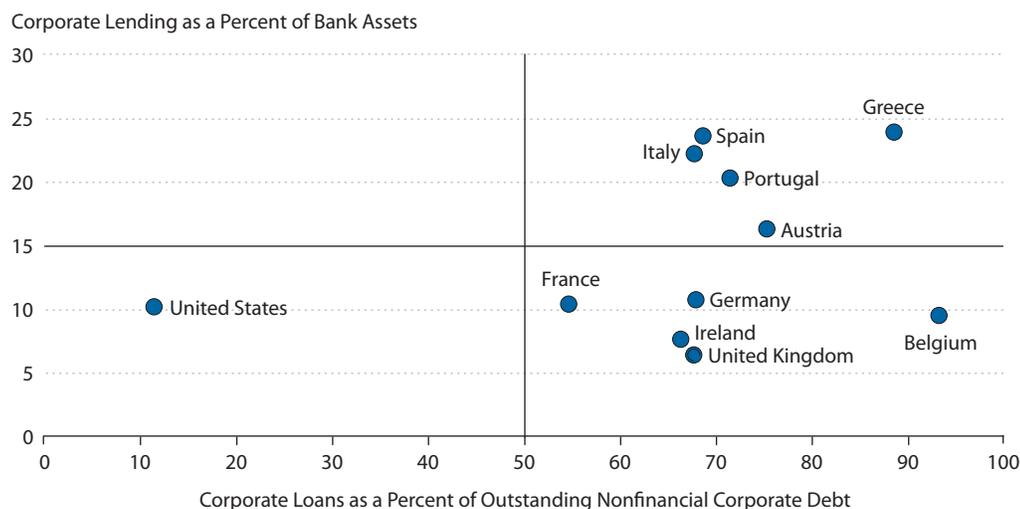
## DELEVERAGING

An important feature of every boom and bust credit cycle is deleveraging by financial intermediaries in the downward phase of the credit cycle. Deleveraging is the process by which banks lower their leverage or asset-to-equity ratio (see Geankoplos, 2010 and 2011, for a survey of theoretical work on leverage cycles). As Shin (2012) points out, European banks became accustomed to the liberal use of wholesale dollar funding markets. When this source dried up suddenly after the Lehman collapse, it made the process of deleveraging even more challenging.

As banks deleverage, they may liquidate existing assets, call back existing lines of credit, refuse to extend loans, and strengthen lending standards (increase collateral requirements). In short, deleveraging involves reducing existing debt levels through retained earnings, equity injections, or selling off assets. Private investors naturally avoid equity injections into banks in times

Figure 7

## Reliance on Bank Funding by Non-Bank Institutions



SOURCE: ECB, Eurostat, Federal Reserve from IMF report (2012).

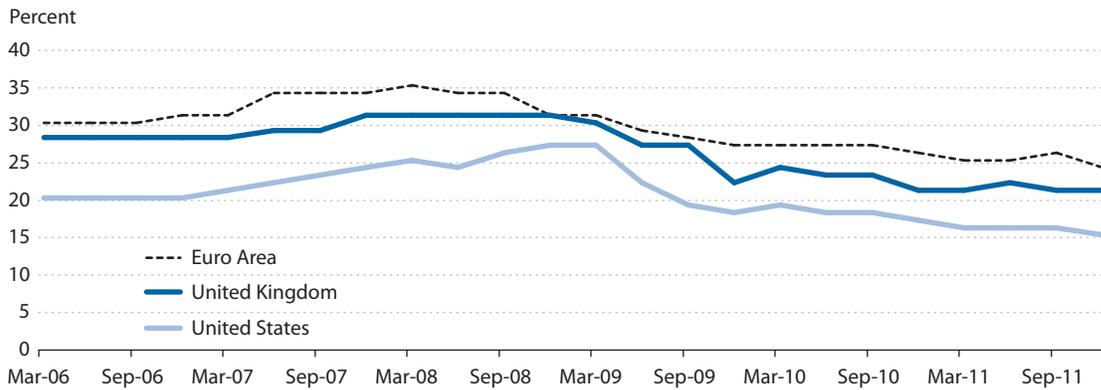
of financial distress. Rapid deterioration of loan quality and asset prices reduces the banks' earning potential, often prompting fire sales of assets. At times in which collateral values are declining, an economy-wide process of deleveraging can exacerbate the credit contraction with broader implications for the real economy. Importantly, this effect is greater for economies in which firms are more dependent on banks for their funding needs.

Figure 7 illustrates that European corporations' reliance on bank funding is greater than that for U.S. corporations. For every European nation, more than half of all outstanding non-financial corporate debt is concentrated in the form of corporate loans from banks. In comparison, the same number for the United States is less than 20 percent. From the point of view of the banking sector, corporate lending as a percentage of bank assets is more than 15 percent for distressed peripheral countries such as Greece, Spain, Italy, and Portugal. Here, Ireland is the only exception. Therefore, while U.S. corporations typically have ready access to capital markets directly, European firms are more reliant on intermediated finance. This feature implies that the effects of deleveraging in the banking sector on the real economy are likely to be greater in Europe than the United States.

In addition, the fact that European firms are more likely to have long-term lending relationships with their banks can exacerbate the real costs of deleveraging, as firms engaged in such lending relationships find it difficult to switch banks. Furthermore, not only do European banks have greater leverage and higher loan-to-deposit ratios, but they also have not succeeded in reducing these variables to the extent that U.S. banks have (Figures 8 and 9). This feature of the data may have something to do with poor assessment of loan quality and forbearance on the part of European regulators. This leads to the second post-crisis problem that banks are facing.

**Figure 8**

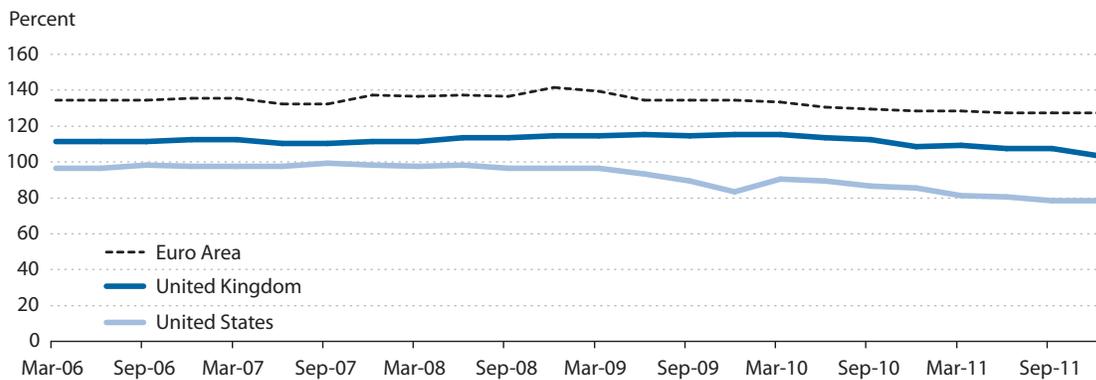
**Bank Leverage**



SOURCE: IMF (2012).

**Figure 9**

**Bank Loan-to-Deposit Ratios**



SOURCE: IMF (2012).

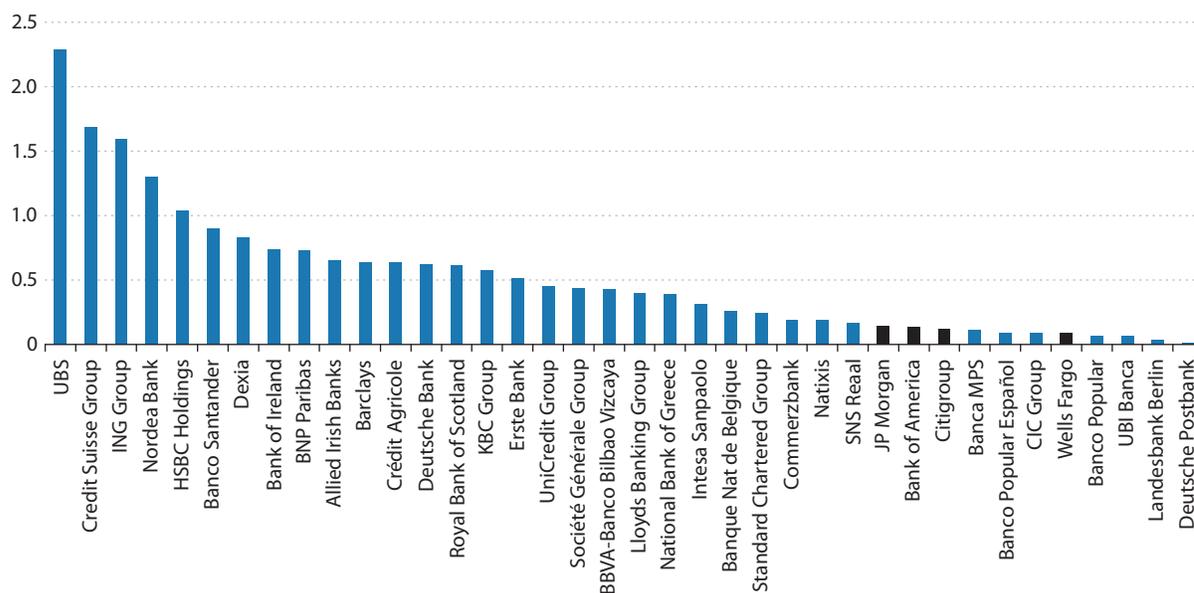
**DISTRESSED BANKS AND LOAN LOSS PROVISIONS**

At the heart of the financial woes in Europe is a growing fear of the quality of bank balance sheets. First, the overall data patterns are suggestive of the existence of distressed banks in Europe. However, there is no clear evidence of this phenomenon because real-time data on the quality of bank assets are hard to come by. Therefore, much of the evidence on this is anecdotal.<sup>13</sup> Take, for example, the media reports on Bankia, Spain’s largest mortgage lender:

Bankia also revised its earnings statement for 2011, stating that instead of a profit of 309 million euros, it had in fact lost 4.3 billion euros before taxes...<sup>14</sup>

Figure 10

## Bank Asset-to-GDP Ratio



NOTE: As-reported data. Differences arise from whether the company uses IFRS or GAAP. Several large Danish and Swedish banks omitted.  
SOURCE: Bloomberg and IMF.

Shortly after Spain seized control of Bankia on May 9, as a first step toward recapitalizing the company, Mr. Guindos told lawmakers that the total cost of cleaning up the bank would be at least 9 billion euros. Instead, after reviewing its most recent losses, Bankia's board estimated Friday that the total would be 23.5 billion euros—the 4.5 billion euro emergency loan previously granted to the bank and the additional 19 billion euros sought on Friday...<sup>15</sup>

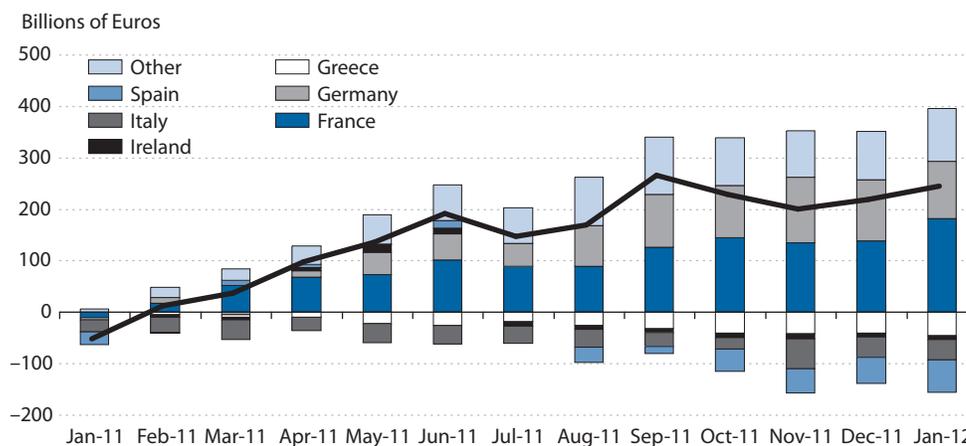
As the anecdotal evidence points out, repeated revisions to the true extent of bad loans heighten uncertainty. They also bring into question the extent of the regulatory forbearance that is occurring.

Second, the problem of bank distress is especially acute for Europe, given the size of some of these banks. Figure 10 ranks banks by the ratio of bank assets to GDP, with U.S. banks shown in black. Several banks have assets greater than their country's GDP, with a larger number of banks with assets greater than half of their country's GDP. This is in sharp contrast with the ratios for U.S. banks (shown as black bars), for which this ratio is relatively small.<sup>16</sup>

Moreover, it is important to point out that, unlike the United States, neither the EU nor the euro zone is a banking union. This means that bank regulation for global banks and deposit insurance are administered by the individual national governments or central banks—and not the ECB. In this situation, it is not inconceivable for investors to view the problem of bad assets in European banks to be so large that a national bailout guarantee is no longer credible. Indeed, there has been growing pessimism among investors about both (i) the stated health of European banks in general and (ii) the ability of the national governments to bail out these distressed banks:

**Figure 11**

**Cumulative Euro Area Deposit Flows (2011-12)**



The fear is that it [Spain] will not have the money to save its banks, and their \$1.25 trillion in deposits, and will need a rescue by the rest of Europe—even as political and financial leaders struggle to resolve Greece’s debt debacle.<sup>17</sup>

## CAPITAL FLIGHT FROM THE PERIPHERY

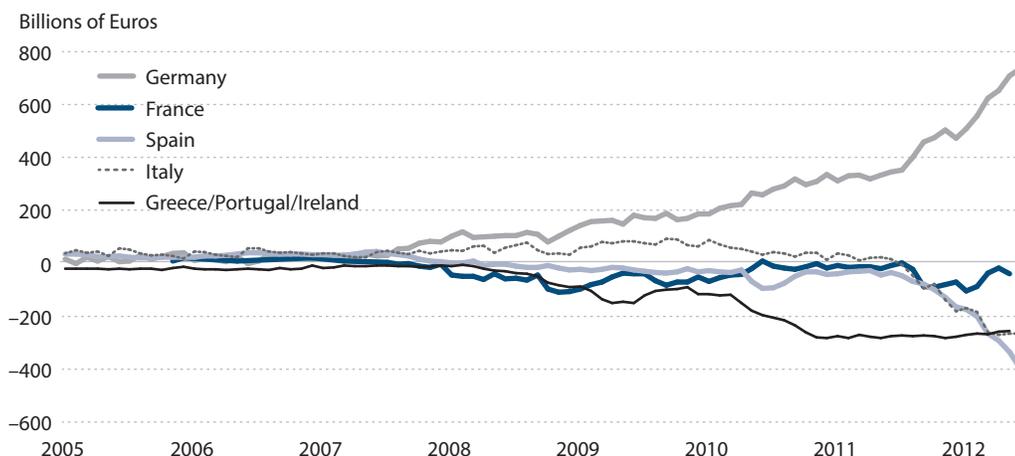
An immediate consequence of the declining credibility of central banks and national governments to provide deposit insurance is capital flight. Needless to say, depositors are more likely to “flee” in the very countries where governments or central banks have the lowest credibility. Over this past year, Europe has witnessed outflows from banks in Ireland, Italy, Greece, and Spain into those in Germany and France (see Figure 11).

As the crisis of credibility spreads from one country in the euro zone’s periphery to another, the affected country faces a spiral of an increasing shortage in its (private) sources of funding accompanied by capital flight from the respective banking systems. This has important implications for financing the country’s internal public debt and external debt. Banks have received cheap funding from the ECB’s Long-Term Refinancing Operations (LTRO) and these are also reflected in the balances on the Trans-European Automated Real-time Gross Settlement Express Transfer System (TARGET2).<sup>18</sup>

Typically, repurchase operations (repos) are the main tool by which the ECB conducts monetary policy. The ECB generally uses its weekly Main Refinancing Operation (MRO) with biweekly maturities. These are shorter-term refinancing operations. However, even prior to the crisis, the ECB used the LTRO with terms to maturity of three months. Such LTROs were conducted so that smaller banks with little access to interbank markets had a source of liquidity (Linzert, Nautz, and Bindseil, 2004). In the wake of the crisis, the ECB changed the way in which it conducted these repo operations to extend large amounts of liquidity into the banking system in response to the sharp deterioration of interbank lending in the euro zone.

Figure 12

## Widening TARGET2 Imbalances



SOURCE: Institute for Empirical Economic Research.

### LTROs

The ECB, over the course of a few years, increased the maturity of the repo operations that they were conducting, first going to 6 months, then 12 months, and finally 36 months. Additionally, the way in which banks went about engaging in these operations changed. Prior to the crisis, LTROs were done with a variable rate tender, in which banks were required to bid on a fixed allotment of euros. This auction format was not unlike that for U.S. Treasuries. However, in response to the liquidity troubles that Europe faced, the ECB decided to engage in a fixed-rate tender with full allotment. In this sense, as long as banks have the required collateral, then they have access to as much liquidity as they need.

In addition to this non-standard implementation of monetary policy, the ECB also expanded the set of eligible collateral for longer-term repo operations. Since sovereign debt may be used in these repo transactions, banks holding official debt would have had significant access to liquidity. This policy may have incentivized European banks to hold more sovereign debt. However, to the extent that sovereign debt was used as collateral in the repo transactions, this policy effectively further intertwined the sovereign debt crisis and banking crisis currently occurring in Europe (Shambaugh, 2012).

### TARGET2 Imbalances

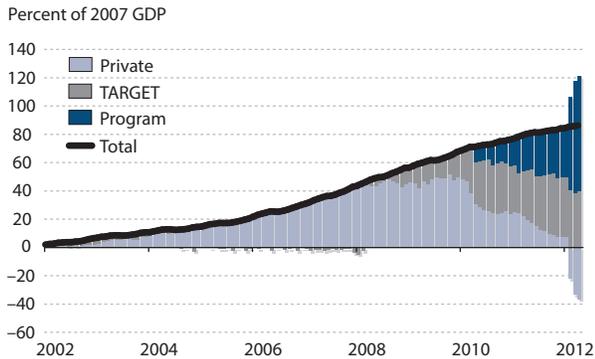
The extent to which banks are currently being supported in the euro zone is reflected in the TARGET2 payment system. TARGET2 is a payment and settlement tool used by the ECB for transactions within the euro zone. Simply put, it is the system the ECB uses to calculate debt obligations between the euro zone's national central banks.

Before the crisis, external purchases of goods and services in a deficit country, say, Greece were privately funded. This means that a Greek farmer could finance his purchase of a German

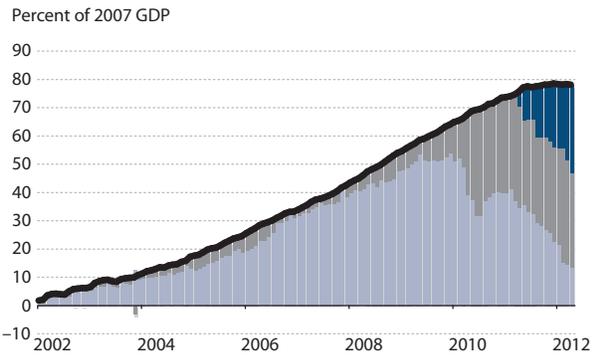
**Figure 13**

**Private Capital Flight from the Periphery**

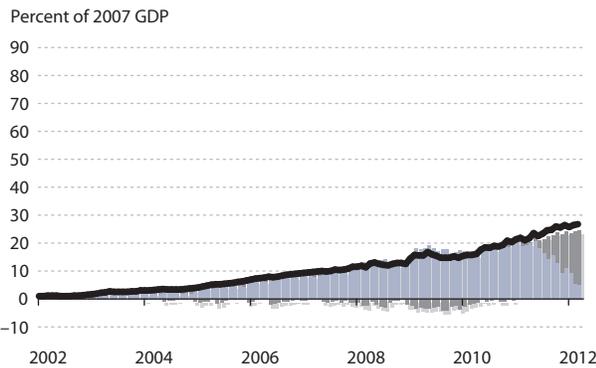
**A: Greece**



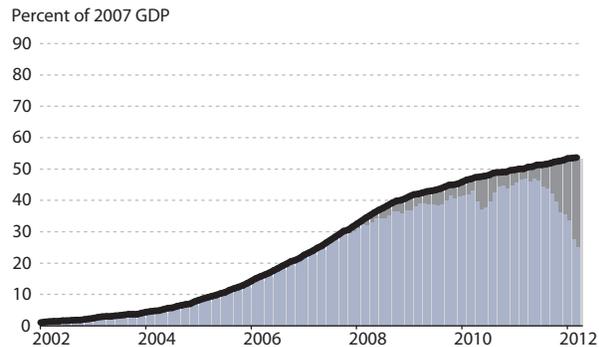
**B: Portugal**



**C: Italy**



**D: Spain**



SOURCE: Country central banks and Merler and Pisani-Ferry (2012).

automobile by taking out a loan from a Greek bank, which in turn would need to gain funding in the capital market. During the crisis, such private sources of funding have dried up for Greek banks, forcing them to borrow from non-private sources, namely the Bank of Greece, which in turn borrows from the ECB. In a world where the ECB provides loans to Greek banks, Greece obtains a liability with the ECB, which it must pay interest on. At the same time, if the German automobile manufacturer deposits the funds from the payment in a German bank, the payment is credited, typically via the Bundesbank, as an asset (such as an interest-bearing deposit) with the ECB. The TARGET2 payment system must balance in aggregate because the ECB acts as a central clearing party to cross-border transactions across the euro zone. In short, the mechanics of the aforesaid transaction implies that the Bundesbank's account is credited with a simultaneous and equivalent liability of the Bank of Greece (see Sinn and Wollmershaeuser, 2011, for further details).

A similar pattern of adjustment would arise if depositors withdrew their balances from Greek banks and put them in German banks. To provide for these withdrawals, Greek banks would have to sell assets or borrow from the ECB via the Bank of Greece. Evidently, private capital flight away from Greece and into Germany could show up as TARGET2 imbalances. Put differently, if banks could obtain capital privately, there would be no need to run TARGET2 deficits. Figure 12 shows that the TARGET2 imbalances for the euro zone countries have been widening for the past few years, with Germany accumulating a positive balance to cover the negative balances of the countries on the periphery.

Using the methodology in Merler and Pisani-Ferry (2012), we show capital flows into the euro zone countries of Greece, Portugal, Italy, and Spain in Figure 13, panels A through D, respectively.<sup>19</sup> The figures may be interpreted as the percentages of the financial account that are made up of private investment or public investment—representing formal assistance programs and TARGET2 imbalances. The figures start in 2002 as the net international investment position (NIIP) as a percentage of 2007 GDP. The line series is then the accumulation of each period's financial account for the respective country. Or, equivalently, it is the NIIP (a stock) in 2002 adjusted by the financial account each period (a flow). The gray bars are the accumulated TARGET2 liabilities for each of the countries. The dark blue lines are the accumulated program assistances from the IMF, ECFIN, EFSF, and ECB. The light blue lines are then netted out of the accumulated financial accounts.<sup>20</sup>

The TARGET2 payment system reflects the bank funding provided to these countries. This means that these countries are all at some level borrowing from other euro zone countries to finance their investments. Interestingly, it appears that the use of borrowings from the ECB as reflected in their TARGET2 liabilities is a precursor of more formalized assistance from the IMF or ECB. As such, Greece, Portugal, and Ireland (not shown here) have all required some level of assistance. At the time of this writing, such assistance was not used by Spain and Italy; but, from Figure 13, it would appear that this is where they were headed. A final observation on these graphs is that in Greece (and Ireland), the accumulated public investments have begun to dominate private investment so that the cumulative capital inflows are now wholly financed by public programs.

## CONCLUSION

This paper describes some of the patterns of global finance over the past decade, especially those that played an important role in the subsequent turmoil both in Europe and the United States. At the center of these inflows and outflows were global European banks, whose ability to exploit lax regulation and cheap credit in an increasingly integrated financial system assisted in creating the boom-bust scenarios not just in some European countries, but in the United States as well. Finally, we describe the aftermath of the crisis in terms of some of the challenges faced by Europe as a whole and European banks in particular.

The findings here would suggest that any discussion on the future of global financial architecture should take the following into account: First, while net capital flows are important to examine important trade patterns, the role of gross capital flows cannot be underestimated—especially if policy is concerned about asset price bubbles and notions of systemic risk. Second,

both interbank and intrabank flows are important. Therefore, the availability of cheap credit at one location may exacerbate credit booms in different locations, globally. Therefore, in examining policies of financial stability, we need to examine regulatory practices in that jurisdiction but also those followed in other locations as well. Lastly, given the importance of bank-based intermediation in most advanced economies and emerging markets, the role of global finance in propagating business cycles can hardly be underestimated.

## NOTES

- <sup>1</sup> The “euro zone” refers to 17 countries in the European Union (EU) that are also part of an economic and monetary union that has adopted the euro as the official currency. There are 10 EU countries that are not part of the euro zone but are required by the treaty to join once they meet certain requirements. Denmark and the United Kingdom have exemptions from this requirement, and Switzerland is not a member of the EU.
- <sup>2</sup> For example, “Greece owes French banks 41.4 bn [euros], German banks 15.9 bn [euros], UK banks 9.4 bn [euros] and US banks 6.2 bn [euros].” Clearly the share of debt for U.K. and U.S. banks is smaller by comparison. See BBC News (2012b); <http://www.bbc.co.uk/news/business-13798000>.
- <sup>3</sup> The depreciation from June 1997 to July 1998 was lowest for the South Korean won at 34 percent and highest for the Indonesian rupiah at 87.2 percent. In contrast, over a 2-year period from July 2008 to July 2010, the euro depreciated 21 percent vis-à-vis the dollar.
- <sup>4</sup> Arguably, the origins of the downward spiral probably differ for various countries. For Greece, such problems can be traced to government finances, whereas the bursting of house price bubbles is believed to be the proximate cause of distress in Ireland and Spain (see Shambaugh, 2012, for details).
- <sup>5</sup> The balance sheet channel comes from the fact that the cost of raising external funds is lower for high-net-worth agents (firms and individuals). Agents with higher asset values can readily pledge them as collateral. This, in turn, affects their investment and spending decisions as their financial positions determine the price of credit. Therefore, when nonperforming assets increase, the increase affects banks’ future lending decisions.
- <sup>6</sup> One complication here is that international banking flows can be quite large and cross-border intrabank flows are of a similar order of magnitude as the volumes of cross-border interbank flows (Cetorelli and Goldberg, 2011).
- <sup>7</sup> Some caution should be exercised in interpreting these numbers. First, almost all BIS data are from reporting banks and not all banks. Second, there is a distinction between locational banking statistics (based on residence) and consolidated banking statistics (based on nationality). Under the locational statistics, the branches and subsidiaries of the global banks are classified together with the host country banks, but they are grouped with their parent country in the consolidated statistics.
- <sup>8</sup> See Noeth and Sengupta (2011) for a description of the U.S. shadow banking system. Also see Shin (2011) for a schematic diagram of this form of cross-border financial intermediation.
- <sup>9</sup> Banks in the United States report using the U.S. Generally Accepted Accounting Principles (U.S. GAAP). These differ from the International Financial Reporting Standards (IFRS) under which European banks operate. For example, under the IFRS, derivative positions are quoted on a gross basis. However, under U.S. GAAP, derivative positions are reported on a net basis. This reporting discrepancy leads to differences in reported leverage ratios. Specifically, it inflates the leverage ratios of European banks compared with those in the United States (Carmassi and Micossi, 2012).
- <sup>10</sup> Acharya and Schnabl (2010) provide a much more nuanced description of the mechanics of the ABCP structured finance products, as well as its country-level regulation.
- <sup>11</sup> Conduits, or special purpose vehicles, were created by investment banks to host the assets (mortgages) off their balance sheets. These conduits would then issue asset-backed securities. See Noeth and Sengupta (2011) for details.
- <sup>12</sup> There were also direct effects of exposure to banks, such as Landesbanken with substantial exposure to U.S. subprime mortgages (see Puri, Rocholl, and Steffen, 2011).
- <sup>13</sup> Given this lack of evidence, we refrain from using the term zombie banks for European banks and instead refer to them as distressed. Moreover, it is likely that this problem for Europe is not as widespread as in the case of the savings and loan crisis.

- <sup>14</sup> "Bankia shares suspended amid bailout request reports." BBC News, May 25, 2012a.
- <sup>15</sup> See Minder (2012).
- <sup>16</sup> Of course, this is largely due to the fact that (i) U.S. GDP is much greater than that of individual European nations and, as mentioned earlier, (ii) alternative sources of finance play a greater role in intermediation in the United States than in most European countries.
- <sup>17</sup> See Minder (2012).
- <sup>18</sup> TARGET2 replaced the original TARGET system in November 2007. TARGET2 has a more centralized structure than the original TARGET system, but is conceptually similar. Accordingly, we use the acronym TARGET2 to refer to both systems.
- <sup>19</sup> We are especially indebted to Sylvia Merler for sharing the data and methodology in computing these figures.
- <sup>20</sup> It is important to note that the accumulated capital inflows do not completely represent the NIIP after 2002 because the investment holdings of individual countries do not necessarily yield the same return and also may be subject to changes in valuation.

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