CHAPTER 1

ACUTE RISKS REDUCED: ACTIONS NEEDED TO ENTRENCH FINANCIAL STABILITY

Global Financial Stability Assessment

Global financial stability has improved since the October 2012 report. Policy actions have eased monetary and financial conditions and reduced tail risks, leading to a sharp increase in risk appetite and a rally in asset prices. But if progress on addressing medium-term challenges falters, the rally in financial markets may prove unsustainable, risks could reappear, and the global financial crisis could morph into a more chronic phase.

Status of the Stability Indicators

Since the October 2012 *Global Financial Stability Report* (GFSR) all risk dimensions of the global financial stability map have improved (Figures 1.1 and 1.2). Markets have rallied and near-term stability risks have eased in response to accommodative monetary policies and precautionary policy measures (Figure 1.3). In the euro area, the authorities have clearly signaled their dedication to achieving "more and stronger Europe." Commitments by the European Central Bank (ECB) have reduced sovereign liquidity risk, and together with the ongoing advance toward a banking union and additional debt relief for Greece, have greatly reduced redenomination risk. These broad improvements in risks and conditions have helped boost the resilience of markets to political uncertainty in Italy and the events in Cyprus. The United States avoided a year-end fall from the "fiscal cliff." However, the postponement of decisions on the debt ceiling, automatic spending cuts, and budget appropriations continue to weigh on sentiment, as noted in the April 2013 *Fiscal Monitor*. The Federal Reserve's move from time-specific to indicator-specific forward guidance has provided assurance that the policy stance will remain accommodative until meaningful increases in activity and inflation are realized. The Bank of Japan has also undertaken further easing steps by adopting a 2 percent inflation target and a commitment to open-ended purchases of assets.

Improved financial market conditions are benefiting the broader economy, but the transmission is slow and incomplete, as noted in the April 2013 *World Economic Outlook*. Overall *macroeconomic risks* have declined. In the United States, prospects have brightened; a recovery in the housing market and progress in household deleveraging are bolstering consumption, while banks are poised to increase lending. *Emerging market risks* have also declined, as growth has stabilized and external funding conditions for emerging market economies are very favorable. However, near-term economic prospects in the euro area remain weak, as public and private balance sheet repair and bank deleveraging continue.

The reduction of acute financial stress has led to a substantial decline in market and liquidity risks. Market positioning has become more optimistic, volatility has declined, and access to funding has improved for corporations and banks. In the euro area periphery, bank issuance has recovered; even lower-tier banks have gained some access to funding markets. External investors have returned in force to periphery sovereign markets. Nevertheless, the situation remains fragile, as illustrated by recent market volatility following the Italian parliamentary elections. Still-high funding costs, amid persistent financial fragmentation and low growth in the euro area, compound the debt overhang built up during the boom in periphery corporate balance sheets. The second section of this chapter assesses tail risks, funding conditions in sovereign and banking markets, and the sustainability of corporate debt in the euro area, and concludes that persistent fragmentation and continued impairment of credit

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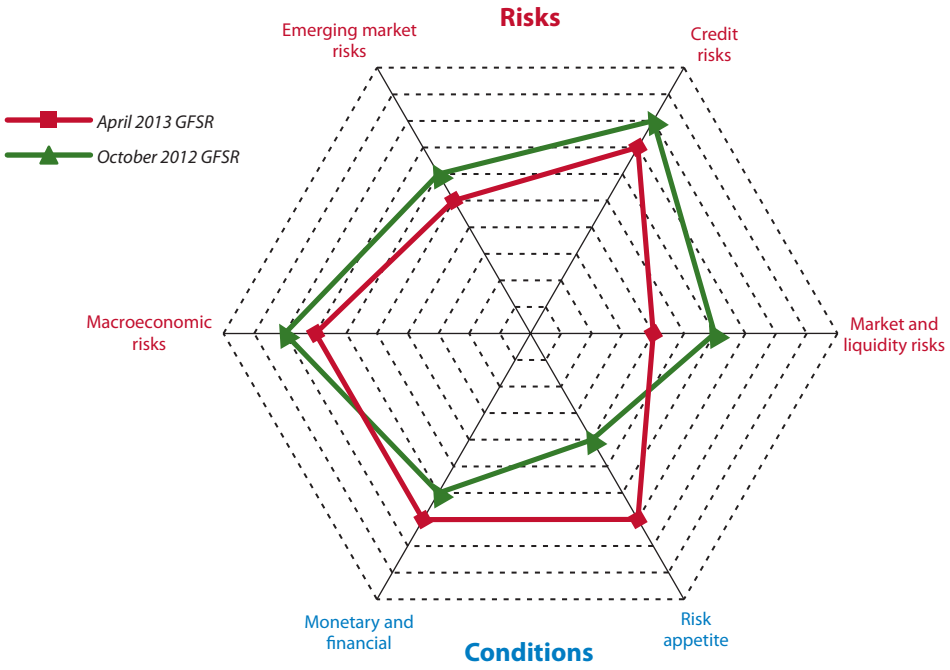
Figure 1.1. Global Financial Stability Map



Source: IMF staff estimates.
Note: Away from center signifies higher risks, easier monetary and financial conditions, or higher risk appetite.

channels call for further progress in restoring stability and market functioning.

Uneven progress in strengthening balance sheets means that medium-term risks remain elevated. Although *credit risks* have improved somewhat, there are still important downside risks and medium-term challenges. In the euro area, the prospect for further reform and balance sheet repair is clouded by political uncertainties and rising reform fatigue, while economic momentum remains weak and unemployment high. In the United States and Japan, credible plans for medium-term fiscal adjustment are needed to help avoid a sudden deterioration in risk perceptions.

The third section of this chapter, on Banking Challenges, assesses the state of recovery and health in various banking systems and remaining structural challenges, as the new market and regulatory environment is forcing banks to reshape their business models.

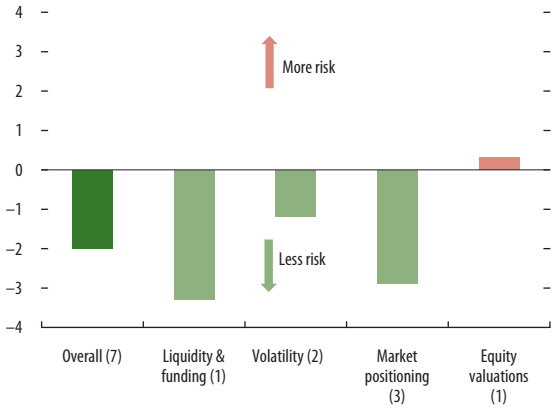
Monetary and financial conditions have eased further, as unconventional monetary policies in advanced economies continue to provide essential support to credit and aggregate demand. However, a prolonged period of low interest rates and continued monetary accommodation could generate significant adverse side effects. *Risk appetite* has strengthened markedly (three notches on the stability map) on expectations of a prolonged period of low interest rates and lower tail risks. A higher appetite for risk could lead to exaggerated valuations and rising leverage, which may become systemic and spill over to emerging market economies.[1] Most sectors exhibit few clear signs of asset price bubbles just yet, despite relatively rapid price gains. For advanced economies, equity valuations appear to be within historical norms, and forward-looking valuations are below the peaks reached before the 2008–09 financial crisis (Figures 1.4 and 1.5). However, signs of overheating in real estate markets are evident in some European countries, in Canada, and in some emerging market economies (Figure 1.6). Meanwhile, access by emerging market and developing economies to international capital markets has also picked up, with external factors

[1]See also Chapter 3, which discusses the impact of central bank interventions on banks and asset markets.

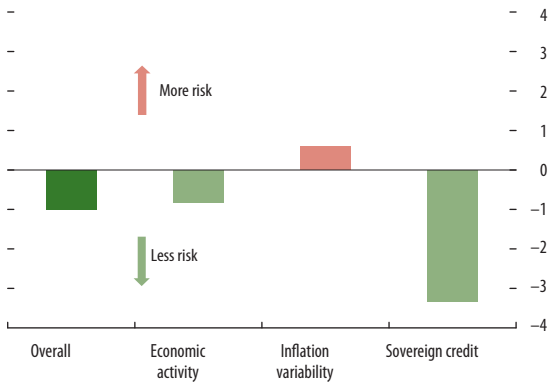
Figure 1.2. Global Financial Stability Map: Assessment of Risks and Conditions

(In notch changes since the October 2012 GFSR)

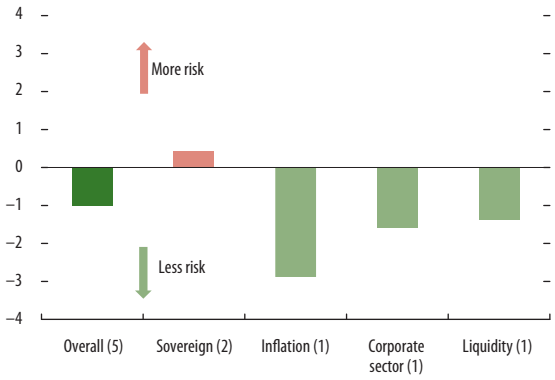
Market and liquidity risks have decreased in response to looser policies…



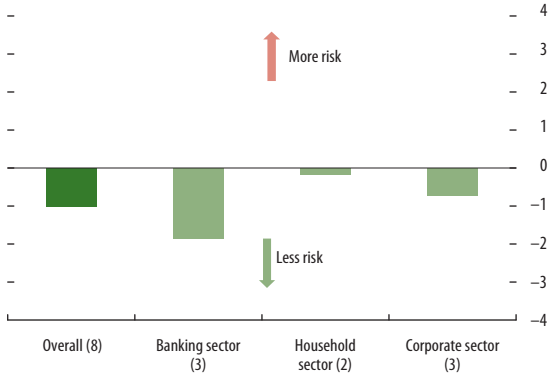
…but improved financial conditions are only slowly translating into lower ***macroeconomic risks***.



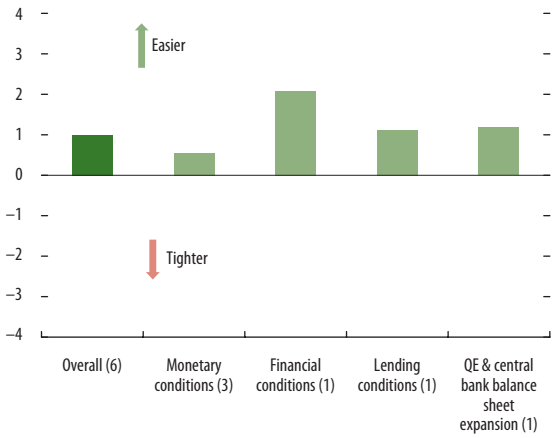
Emerging market risks have improved along with global macroeconomic and financial conditions.



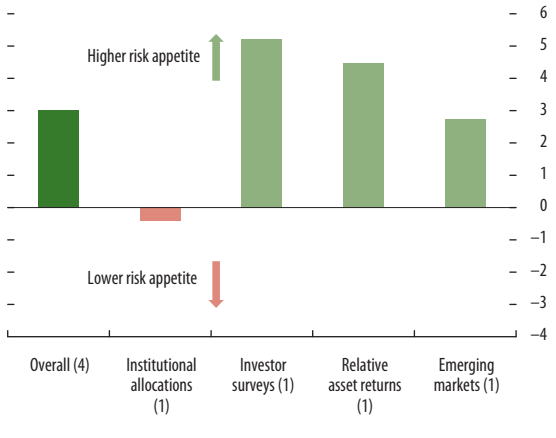
The reduction in systemic risks along with continuing balance sheet repair have lowered ***credit risks***.



Monetary and financial conditions have loosened further with central bank policy easing and better financing and lending conditions…



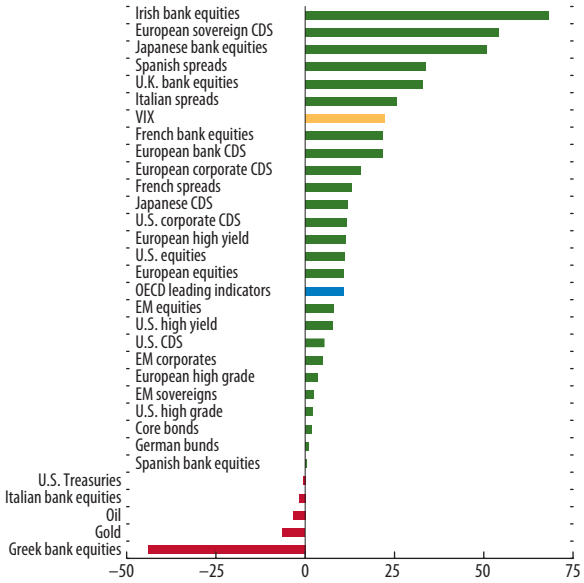
…which, in combination with strong policy action and reduced near-term event risks, has boosted ***risk appetite***.



Source: IMF staff estimates.

Note: Changes in risks and conditions are based on a range of indicators, complemented with IMF staff judgment; see Annex 1.1 in the April 2010 GFSR and Dattels and others (2010) for a description of the methodology underlying the construction of the global financial stability map. The notch changes in the "overall" indicator in each panel are the simple average of notch changes in individual indicators. The number next to the legend for each indicator is the number of components it contains. For lending conditions (monetary and financial conditions panel), positive values represent slower tightening or faster easing of standards. QE = quantitative easing.

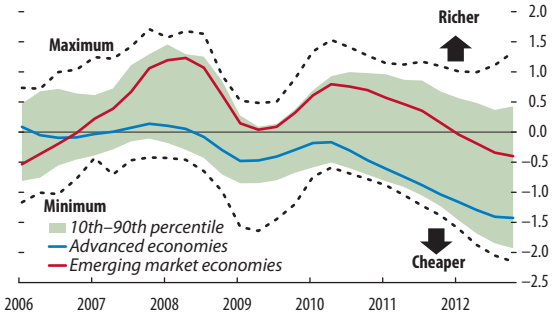
Figure 1.3. Asset Performance since the October GFSR
(Percent change)



Sources: Bank of America Merrill Lynch; Bloomberg L.P.; JPMorgan Chase; and IMF staff estimates.

Note: CDS = credit default swaps; EM = emerging market; OECD = Organization for Economic Cooperation and Development. Percent changes in CDS spreads and VIX are reversed.

Figure 1.4. Global Equity Valuations
(In z-scores)



Sources: Bloomberg L.P.; IBES; and IMF staff estimates.

Note: Based on GDP-weighted average of z-scores of price-to-book (P/B) and forward price-to-earnings (P/E) ratios. The z-scores represent the deviation from the period average expressed in the number of standard deviations. Values above zero denote richer valuations relative to historical averages, while those below zero denote cheaper valuations. P/B and P/E ratios are monthly series beginning in 1996 and 1987, respectively, or earliest available. Advanced economies include 22 countries, and emerging market economies include 17 countries.

being the primary driver behind the recent compression in spreads (Figure 1.7).

Asset price pressures are likely to grow further over time in the presence of abundant global liquidity. The fourth section of the chapter focuses on the United States and discusses the potential consequences for the mispricing of credit risk, riskier positioning by weaker pension and insurance companies, and higher liquidity risk. It also examines the potential spillovers through an acceleration of capital flows into emerging market economies. Without measures to address medium-term vulnerabilities and rein in credit excesses when they appear, a prolonged period of low interest rates could lay the ground for new financial stability risks. Eventually, an unexpected and rapid rise in risk-free rates could trigger substantial market volatility and repricing. Fair-value estimates for U.S. Treasury yields have already increased in the past six months on the back of reduced tail risks (Figure 1.8).

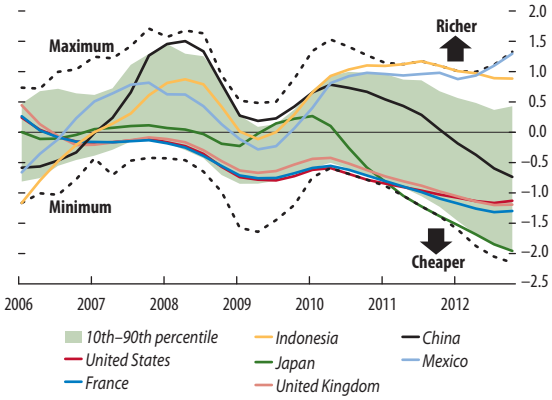
In sum, if progress on addressing the above risks and medium-term challenges were to stall, the recent rally in global markets could prove unsustainable. Pressures in the euro area periphery from a sizable debt overhang—as much as one-fifth of the debt of nonfinancial listed firms—together with broken credit transmission channels keep costs high. Credit continues to contract (by 5 percent since the outbreak of the crisis), starving the vital small and medium-sized enterprise (SME) sector of financing and blocking economic recovery, while worsening bank balance sheets. Furthermore, progress in returning banks to full health to support recovery is uneven: a further $1.5 trillion in EU bank deleveraging may lie ahead as banks need to adjust business models, reduce reliance on wholesale funding, and rebuild buffers.[2] In the United States, accommodative monetary policies are bringing about an intended shift toward risky assets. But could this go too far? Evidence suggests that corporate underwriting standards are weakening at an early stage, even though leverage is still two-thirds below prior cyclical peaks.

As discussed in the fifth section of the chapter, in emerging market economies with capital inflows advancing and external conditions favorable, releveraging is occurring at a rapid pace in some areas, along with riskier forms of borrowing. A prolonged

[2]This is based on the baseline scenario in the October 2012 GFSR, under which large EU banks were projected to reduce assets by $2.8 trillion during 2011:Q3–2013:Q4, adjusting for the progress in bank deleveraging observed up to 2012:Q3 ($1.3 trillion). See the section on Banking Challenges.

Figure 1.5. Global Equity Valuations, by Country

(In z-scores)

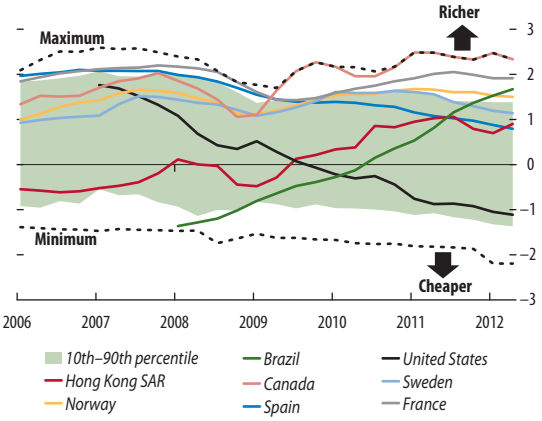


Sources: Bloomberg L.P.; IBES; and IMF staff estimates.

Note: Based on unweighted average of z-scores of price-to-book (P/B) and forward price-to-earnings (P/E) ratios. The z-scores represent the deviation from the period average expressed in the number of standard deviations. Values above zero denote richer valuations relative to historical averages, while those below zero denote cheaper valuations. P/B and P/E ratios are monthly series beginning in 1996 and 1987, respectively, or earliest available.

Figure 1.6. Property Price Valuations

(In z-scores)

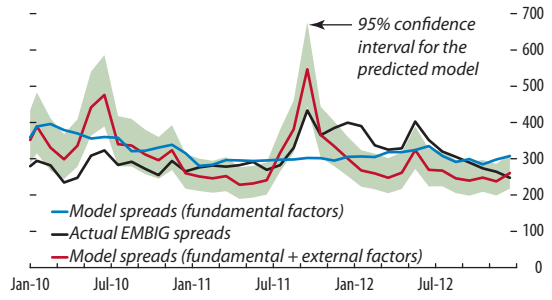


Sources: Organization for Economic Cooperation and Development; and IMF staff estimates.

Note: Based on unweighted average of price-to-rent ratio (PRR) and price-to-income ratio (PIR). The z-scores represent the deviation from the period average expressed in the number of standard deviations. Values above zero denote richer valuations compared with historical averages, while those below zero denote cheaper valuations. PRR and PIR are quarterly series beginning in 1970, or earliest available.

Figure 1.7. Hard-Currency Debt Valuations in Emerging Market Economies

(In basis points)

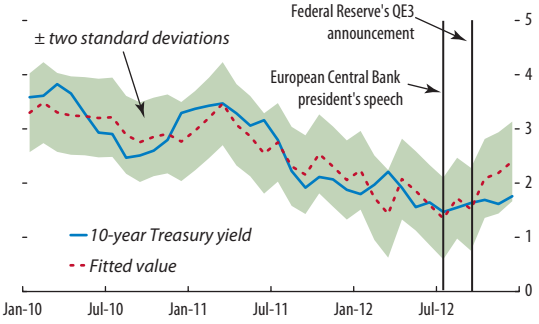


Sources: Bloomberg L.P.; JPMorgan Chase; PRS Group; and IMF staff estimates.

Note: The EMBIG index is the benchmark hard-currency government debt index for emerging market economies. External factors for the model include the VIX, the federal funds rate, and the volatility of federal funds. Fundamental factors are political, economic, and financial risk ratings published by the PRS Group. The estimation uses a panel regression with fixed effects for the period January 1998 to December 2012.

Figure 1.8. U.S. Sovereign Debt Valuations

(In percent)



Sources: Bloomberg L.P.; Haver Analytics; and IMF staff estimates.

Note: The 10-year Treasury yield is estimated as a function of domestic macroeconomic factors (business conditions, inflation, and the budget deficit); international factors (custody holdings by foreign central banks and GDP-weighted average of European credit default swaps as a proxy for safe-haven flows); and bond volatility to capture a risk premium. The equation is estimated for the period August 2007 to December 2012

period of low rates could result in increased vulnerabilities, raising the risk of market instability when rates do eventually rise.

Against this backdrop, the final section of the chapter, on Policies for Securing Financial Stability and Recovery, discusses further policy actions needed to prevent the crisis from moving to a more chronic phase, marked by a deterioration of financial conditions and recurring bouts of financial instability as reforms fall short. Avoiding this fate will require addressing weaknesses in private and public sector balance sheets, widening credit channels, and strengthening the financial system. Together, these policies will reduce the reliance on supportive monetary policies and facilitate a speedier normalization of central bank policies. But in the interim, policymakers will need to be vigilant to ensure that pockets of excesses linked to the search for yield do not become systemic.

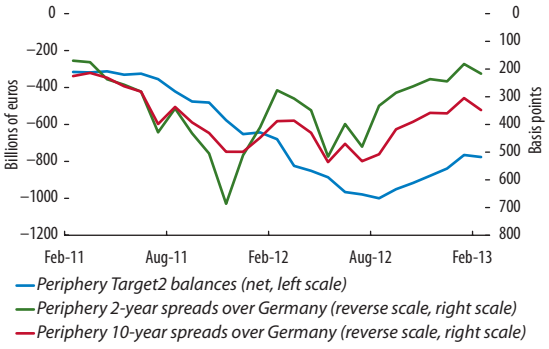
The Euro Area Crisis: Acute Risks Have Declined, Much Work Lies Ahead

Acute short-term stability risks have declined in the euro area on the back of strong policy action. Prices and liquidity conditions in sovereign, bank, and corporate debt markets have improved dramatically, and issuance has soared. However, medium-term risks remain, reflecting a weak economic outlook, persistent fragmentation, and structural challenges. Some banks in the euro area periphery remain challenged by deleveraging pressures, still-elevated funding costs, deteriorating asset quality, and weak profits.[3] Corporations in the periphery are directly affected by bank deleveraging, cyclical headwinds, and their own debt overhangs. Against this backdrop, more work needs to be done in the short term to improve bank and capital market functioning, while moving steadily toward a full-fledged banking union.

Policy actions have greatly reduced near-term perceptions of tail risk.

The ECB's announcement of the Outright Monetary Transactions (OMT) program—together with the decision to support additional debt relief for Greece and agreement on the Single Supervisory Mechanism (SSM)—has greatly reduced redenomination tail risks. In response, external investors have moved from short to long positions on the periphery.[4] Though market liquidity conditions are not yet back to normal, they have improved. Correspondingly, the spread of short-term (two-year) periphery sovereign bonds over German bunds has fallen back toward January 2011 levels (Figure 1.9). The relief for short-term debt markets provided by the OMT pledge has been partly transmitted further along the curve. Still, markets continue to reflect medium-term challenges: the long-term (10-year) spread has reversed only about half of its previous widening, while Target2 imbalances are declining at a slower pace, with about one-fifth of the previous widening reversed so far.

Figure 1.9. Target2 Balances and Sovereign Bond Yields



Sources: Bloomberg L.P.; Euro Crisis Monitor; and Haver Analytics.
Note: Spreads are weighted by nominal GDP, and Target2 balances are cumulative. Spreads for Ireland are constructed using the generic Irish government nine-year bonds.

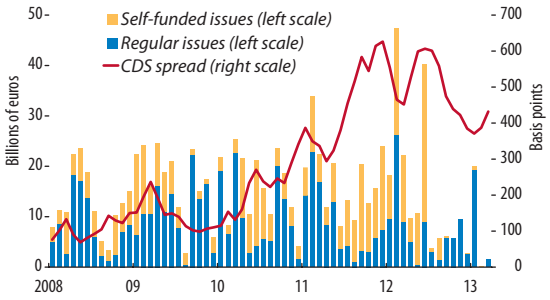
Private funding markets have reopened for periphery borrowers.

The reduction in perceived risks was felt in credit markets more broadly, benefiting even some lower-tier

[3]In this GFSR, the euro area periphery consists of Cyprus, Greece, Ireland, Italy, Portugal, and Spain, except as noted.

[4]During 2012:Q3, the foreign investor share in total government debt in Italy and Spain stabilized at about 35 percent and 30 percent, respectively. Although foreign banks continued to reduce exposures to Italian and Spanish government debt, the process slowed down considerably in 2012:Q3. At the same time, foreign nonbanks started to increase their holdings of Italian and Spanish bonds. Even so, the foreign share is still estimated to be far below the levels seen in mid-2011, before market pressures emerged.

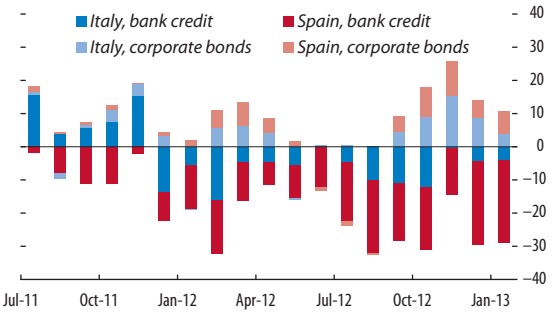
Figure 1.10. Periphery Euro Area Banks' Bond Issuance and CDS Spreads



Sources: Bloomberg L.P.; Dealogic; and IMF staff estimates.
Note: In self-funded deals, the issuer is the sole underwriter. CDS = credit default swaps.

Figure 1.11. Italy and Spain: Nonfinancial Firms' Change in Bank Credit and Net Bond Issuance

(Billions of euros; three-month moving average)



Sources: Bloomberg L.P.; Dealogic; Haver Analytics; and IMF staff estimates.

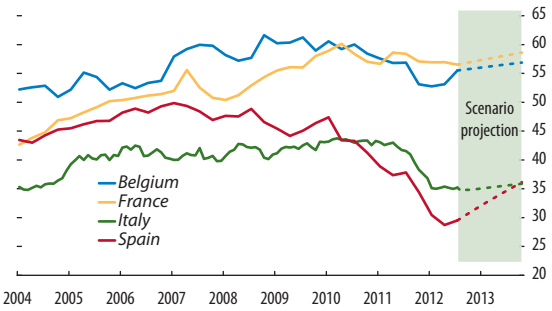
periphery companies. The demand for bank debt has strengthened, compressing spreads and prompting a surge in issuance (Figure 1.10). More than €32.7 billion (gross) was issued by banks and other firms in January 2013 alone.[5] Of this amount, lower-tier bank and corporate issuers accounted for about one-fourth.[6] Some larger Italian and Spanish companies have used the surge in bond issuance to replace bank loans (Figure 1.11), while some banks have started to repay LTRO funds early.

[5]Excluding bank self-funded issues, that was the strongest month since the run in February 2012 in the wake of the ECB's longer-term refinancing operations (LTROs). Figure 1.10 distinguishes between self-funded, where the issuer is the sole underwriter, and regular debt issues.

[6]This includes all issuers from Cyprus, Greece, Ireland, and Portugal, and high-yield issuers from Italy and Spain.

Figure 1.12. Foreign Investor Share of General Government Debt

(In percent)



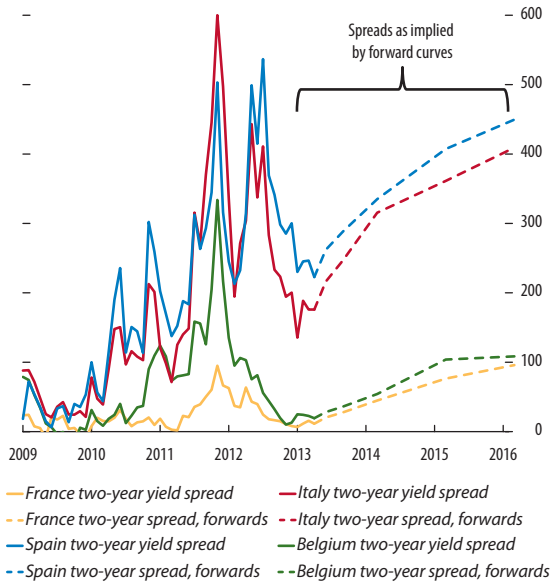
Sources: IMF, World Economic Outlook database; national sources; and IMF staff estimates.
Note: For all countries, government debt refers to general government debt on a consolidated basis. The shaded area is a hypothetical scenario for 2013 that assumes that domestic banks and nonbanks keep their sovereign exposure unchanged.

However, the "virtuous dynamic" prompted by the OMT program has slowed, while adverse events could still revive market stress.

Although investors and officials appear comfortable that the ECB's OMT remains a virtual program, this dynamic could change. In particular, political developments could complicate implementation, as underscored by the uncertainty surrounding the election outcome in Italy. And while prospects for sovereign financing in 2013 have brightened, net financing needs remain challenging for some countries. Assuming that domestic investors keep exposures to their own sovereigns constant (as some of them indicated), foreign investors will need to continue to increase their allocations to sovereign bonds to facilitate government financing at more moderate yields (Figure 1.12).

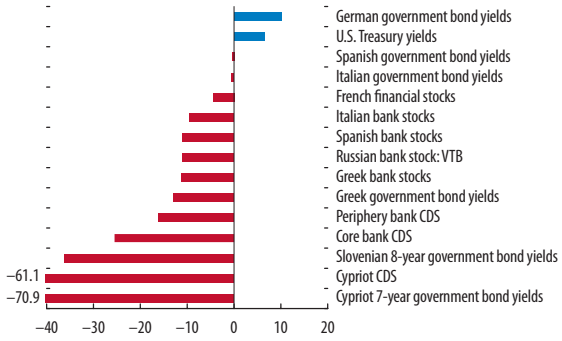
Furthermore, there are concerns that if growth and fiscal outturns in the periphery do not improve, or if progress on euro area architecture reform stalls, recent improvements in market conditions could be reversed. A lasting improvement in growth and fiscal trajectories across the periphery hinges on the successful implementation of structural reforms. Some market participants are concerned that progress on this front could fall short if political support for reform wanes. In part reflecting medium-term risks, forward curves suggest market concerns about the durability of the

Figure 1.13. European Sovereign Bond Spreads, Current and Implied by Forward Curve
(In basis points over German benchmark)



Sources: Bloomberg L.P.; and IMF staff estimates.

Figure 1.14. Asset Performance, March 15–April 2, 2013
(Percent change)



Sources: Bloomberg L.P.; and IMF staff estimates.
Note: CDS = credit default swap. Yields are for 10-year tenors unless otherwise specified. Percent changes in CDS spreads and bond yields are reversed.

spread compression at the short end of the periphery yield curve (Figure 1.13) and no further declines in 10-year periphery sovereign spreads.[7]

The potential for contagion from developments in Cyprus is an important reminder of the fragility of market confidence. Although the adverse reaction to increased risk has not been intense in all markets, there was a renewed flight to safe assets and a selloff in some euro area assets (Figure 1.14). The clearest impact has been on those markets with direct links to Cyprus—notably Greek government bonds and Greek and Russian bank stocks. Slovenian government bonds were also affected. Other effects have included higher funding costs for euro area periphery banks and a selloff in euro area bank equities. The impact of recent events on periphery euro area sovereign spreads was limited, likely reflecting the existence of backstops (including the ECB's OMT). Although it is too early to tell whether these developments have led to a persistent increase in the cost of uninsured funding for banks in countries with weak sovereigns, the experience of Cyprus reaffirms the need to make sustained progress with banking union—especially Single Supervision, a common resolution authority, and a common deposit guarantee scheme—as emphasized in the October 2012 GFSR, in the recent EU FSAP, and in the final section of this chapter.

[7]Consensus forecasts do not suggest that the near-term inflation outlook for Italy or Spain is notably higher than for Germany.

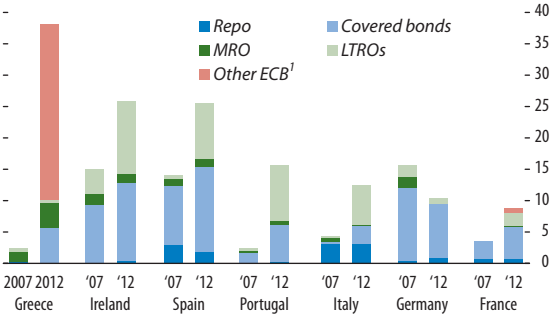
More work needs to be done to address legacy issues and medium-term vulnerabilities, lest the crisis become mired in a more chronic phase.

Despite substantial improvements in funding conditions, fragmentation between the core and the periphery persists. Although the divergence between wholesale funding costs for core and periphery borrowers has partially reversed, the gap has not fully closed. This partly reflects investor concerns about the quality of bank assets and increased asset encumbrance (Figure 1.15): issuance of covered bonds and other asset-backed securities declined in the past year, while some banks in the periphery have seen a marked rise in the cost of collateral-backed debt issuance (Figure 1.16). While the previous declines in foreign investors' claims on periphery sovereigns have begun to reverse (see Figure 1.12), the cross-border banking market in the euro area remains deeply fragmented (Figure 1.17). Some of the retrenchment in cross-border bank claims may be encouraged by regulatory ring-fencing (see the section on Banking Challenges).

Fragmentation, in turn, impairs *credit transmission* to the real economy. Recent market improvements

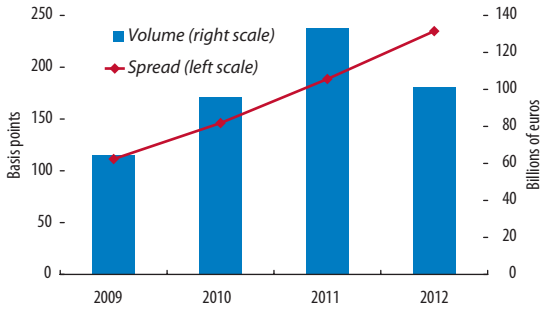
Figure 1.15. Proportion of System Balance Sheets Encumbered

(Percent of bank assets, end period)



Sources: European Central Bank; European Covered Bond database; and IMF staff estimates.
Note: LTROs = longer-term refinancing operations; MRO = main refinancing operations.
[1]Includes fine tuning, Multilateral Fund, and emergency liquidity assistance.

Figure 1.16. Periphery Banks' Covered Bond Issuance and Spreads



Sources: Dealogic; and IMF staff estimates.
Note: Spreads are weighted by a bank's share in the total volume of euro issuance.

are only just beginning to feed through to the cost and availability of credit for productive sectors of the periphery economies. The differences between periphery and core in terms of bank lending rates and corporate borrowing costs continue to persist, as bank repair is still incomplete and funding costs are higher for banks and sovereigns in the periphery. Credit to the real economy remains restrained (especially in the periphery and to SMEs), reinforcing divergence in economic outcomes (Figures 1.18 and 1.19).

Private nonfinancial sector deleveraging could impede the recovery and raise financial strains, as corporations face high debt burdens in an environment of lower growth and higher interest rates.

Figure 1.17. Selected EU Banks' Foreign Claims on Banking Sectors, June 2011–September 2012

(Percent change)

	French Banks	German Banks	Italian Banks	Spanish Banks	U.K. Banks
Euro area periphery	–28	–39	–34	–20	–34
Core euro area	–9	3	–5	18	–26
United Kingdom	–32	11	27	–53	
Other European advanced economies	–16	5	–31	44	–22
United States	–61	–2	–4	5	–30
Japan	–66	–11	–100	–21	11
Other advanced economies	–58	–48	–26	–30	–18
Emerging EMEA	–21	11	6	2	24
Emerging Latin America	12	–32	–80	18	–16
Emerging Asia	–47	–21	–75	–15	5
Total	**–30**	**–5**	**–10**	**–15**	**–19**

Sources: Bank for International Settlements, International Banking Statistics, Table 9E: Consolidated foreign claims and other potential exposures—ultimate risk basis; and IMF staff estimates.
Note: EMEA = Europe, the Middle East, and Africa.

The transmission mechanism is still impaired and credit conditions remain weak in the periphery.

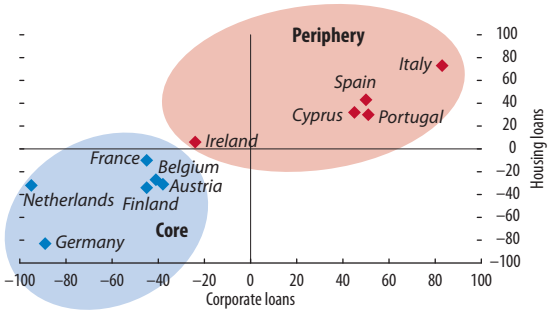
Credit growth rates continue to diverge between the core and periphery countries (Figure 1.20), with periphery credit falling at a pace similar to the baseline scenario outlined in the October 2012 GFSR (Figure 1.21). This weakness in periphery lending is arguably due to credit supply constraints—as banks face balance sheet pressures—combined with low demand from potential borrowers (given the anemic economic environment and, in many cases, with balance sheets burdened by high debt levels).

Disentangling the demand-side from the supply-side drivers of credit developments is not straightforward.[8] The relationship between credit demand and supply is complex (Figure 1.22). For example, cutbacks in credit supply raise the cost of borrowing and lead to lower demand. Furthermore, both supply constraints and falling demand can adversely affect the real economy, which in turn can lower demand and tighten supply further. A weaker economic outlook can also worsen the quality of bank and borrower balance sheets, further affecting the supply and demand for credit.

[8]For example, an IMF (2012b) report on Italy and the Bank of Italy (2012) report found that while the slowdown in credit growth reflected both supply and demand, supply constraints were dominant in 2011, and demand came to the fore in 2012.

Figure 1.18. Changes in Interest Rates on New Bank Loans, December 2010–January 2013

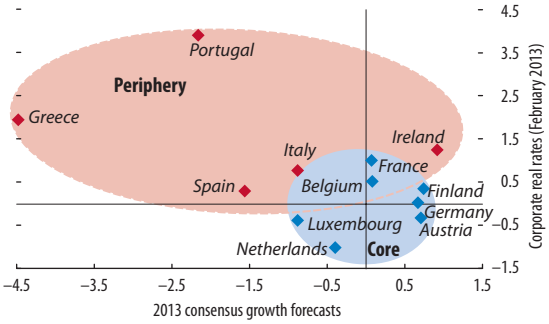
(In basis points)



Sources: Haver Analytics; and IMF staff estimates.

Figure 1.19. Corporate Real Interest Rates and GDP Growth, February 2013

(In percent)

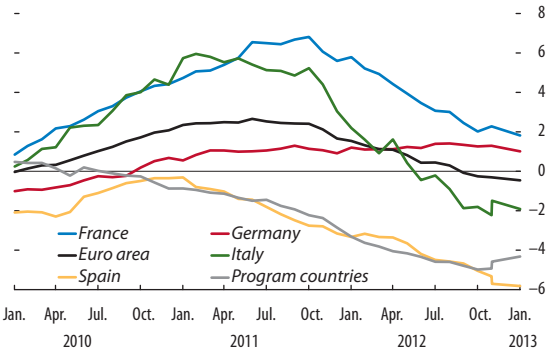


Sources: Bank of America Merrill Lynch; Consensus Economics; and IMF staff estimates.

Note: Corporate rates are ex post, inflation-adjusted yields of all corporate bonds for each country included in the Bank of America Merrill Lynch European corporate master index.

Figure 1.20. Bank Lending to the Nonfinancial Private Sector

(In percent, year-over-year)

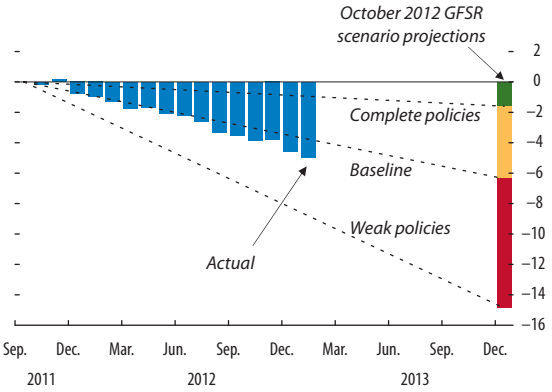


Sources: Haver Analytics; and IMF staff estimates.

Note: Chart adjusted for securitizations. Program countries are Greece, Ireland, and Portugal.

Figure 1.21. Euro Area Periphery Bank Credit

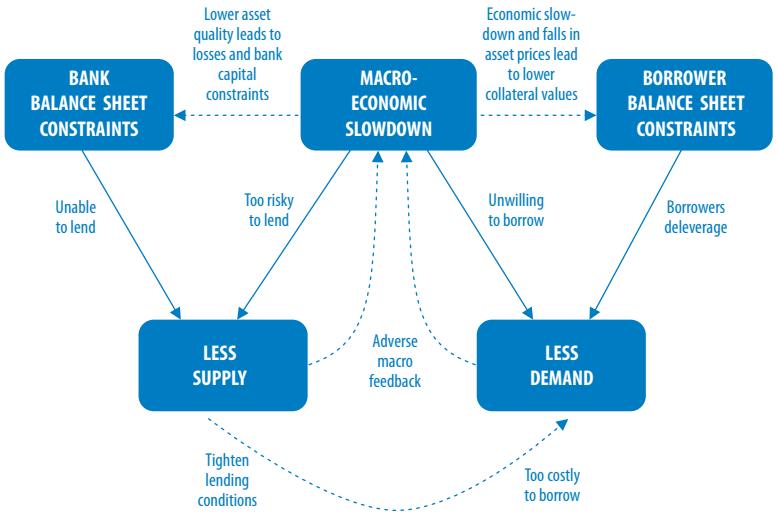
(Percentage change, cumulative since September 2011)



Sources: Haver Analytics; and IMF staff estimates.

Note: Ireland, Italy, Portugal, and Spain, adjusted for securitizations.

Figure 1.22. Interaction between Credit Demand and Supply

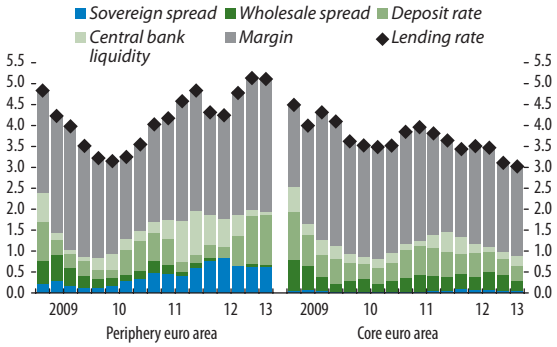


Source: IMF staff.

But even if demand were seen as driving the weakness in credit, barriers to supply would need to be removed so that banks do not hold back the economic recovery once it takes hold.[9] In any case, there is some evidence to suggest that credit supply is tight in the periphery.

- *Interest rates* on new bank lending are significantly higher in the periphery than in core countries (Figure 1.23). This divergence reflects, in part, the increased margin that banks require to compensate them for the greater risk of lending in the periphery. But it also reflects the increased cost of new funding as institutions have made less use of official funding and have competed both among themselves and with retail sovereign debt holders for term deposits. The increase in term deposits comes at a price, as interest rates on them are higher than those on sight deposits.

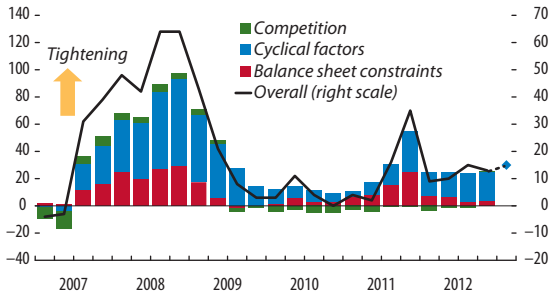
Figure 1.23. Interest Rate on New Lending and Decomposition of New Bank Funding Rate
(In percent, six-month moving average)



Sources: Bloomberg L.P.; Haver Analytics; and IMF staff estimates.
Note: Interest rates on lending and funding are weighted by the amount of new business (the contributions of funding components are shown in the chart). The sovereign spread is the five-year sovereign yield over bunds. The interest rate on new lending is to the nonfinancial private sector.

[9]For example, the Financial Policy Committee of the Bank of England has recently recommended that banks strengthen their capital buffers (which were found by the March 2013 Asset Quality Review to be overstated by about £50 billion) so that banks could sustain credit and absorb losses in the event of further stress. The finding that banks' balance sheet weaknesses (e.g., weak capital buffers in absolute terms or relative to a target level) have a significant negative effect on their supply of loans has been confirmed in a number of studies.

Figure 1.24. Euro Area Bank Lending Conditions for Firms
(Net percentage balance and factor contributions)

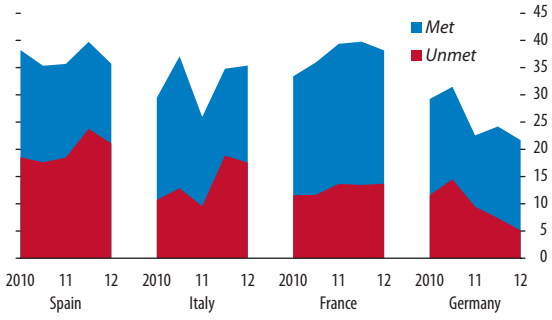


Sources: European Central Bank; Haver Analytics; and IMF staff estimates.
Note: Balance sheet constraints are capital, access to financing, and liquidity position. Cyclical factors are general economic activity, industry outlook, and collateral needs.

- *Lending surveys* also provide evidence: The recent euro area bank lending survey shows a continued tightening in bank lending conditions (Figure 1.24), as well as a further weakening in demand for loans. However, separate surveys of the SME sector suggest that supply constraints are binding for some firms. Figure 1.25 shows that there has been an increase through 2011–12 in the proportion of Italian and Spanish SMEs that wanted a bank loan but did not obtain most or all of the credit for which they had applied.

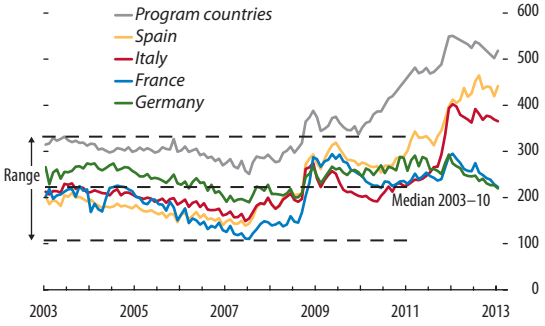
For the euro area core, "macro risk" is the main driver of recent credit conditions, as ECB policies

Figure 1.25. Met and Unmet Demand for Bank Credit for Small and Medium-Sized Enterprises
(Percent of respondents)



Sources: European Central Bank (2012); and IMF staff estimates.
Note: Unmet demand is the percentage of respondents that appplied for a loan and did not get all or most of the requested amount.

Figure 1.26. Spread of Interest Rates on New Loans to SMEs over ECB Policy Rate
(In basis points)



Source: Haver Analytics; and IMF staff estimates.
Note: ECB = European Central Bank; SMEs = Small and medium-sized enterprises. Interest rate on new corporate loans with a value of €1 million or less. Program countries are Greece, Ireland, and Portugal.

have substantially reduced banks' balance sheet constraints and their cost of funding.

The high cost and restricted supply of credit to SMEs impede recovery.

The combination of high bank funding costs and increased risk premiums on lending has impaired the credit transmission mechanism. For example, interest rates on new periphery SME loans are now priced at spreads over the ECB policy rate that are significantly higher than in the past (Figure 1.26). Loan originations for SMEs have also been falling more sharply than for large firms, suggesting that SMEs are bearing the brunt of the reduction in bank credit. This is particularly worrisome given that SMEs typically lack access to capital markets.[10]

The debt overhang poses challenges for the corporate sector.

Firms in the euro area periphery have built a sizable debt overhang during the credit boom, on the back of high profit expectations and easy credit conditions (Figures 1.27A and 1.27B).[11] While the construction

[10]The latest SME survey by the ECB shows that only 2 percent of SMEs in the euro area use bond markets.

[11]The *debt overhang* is defined in the literature as a debt burden that generates such large interest payments that it prevents firms from undertaking profitable investment projects that would

Figure 1.27A. Corporate Debt
(Four-quarter moving average, 2002:Q1 = 100)

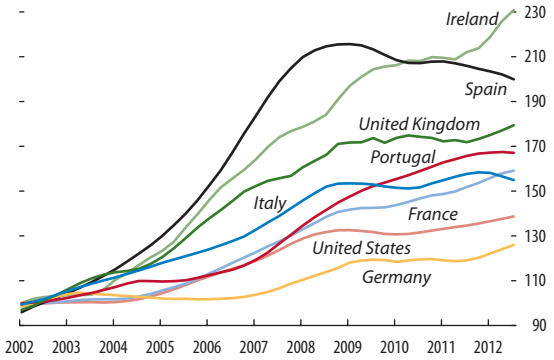
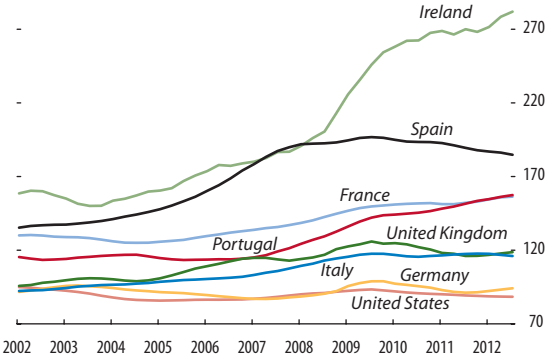


Figure 1.27B. Corporate Debt in Percent of GDP
(Four-quarter moving average)



Sources: Central bank flow of funds data; and IMF staff estimates.
Note: Debt for the entire corporate sector in each country. Gross debt figures include securities other than shares, loans, and other accounts payable. Intercompany loans and trade credit can differ significantly across countries. Consolidated debt levels are significantly lower for some countries, especially those with a strong presence of multinational companies with large intercompany loans.

sectors in Ireland and Spain were at the epicenter of the crisis, the increase in leverage was broad-based across the periphery. Firms in these countries now face the challenge of reducing the debt overhang in an environment of lower growth and higher interest rates, in part related to financial fragmentation in the euro area.

In this report, we assess the effects of high corporate leverage on both debt servicing and debt repayment capacity over the medium term. (The methodology is described in Annex 1.1.) While measures of debt servicing capacity, such as interest coverage ratios, help detect immediate or short-term risks, measures of debt sustainability, based on net free cash flows, help assess medium- and longer-term risks.[12] We conduct a cross-country analysis of the corporate sector based on a sample of listed firms.[13] The firm-specific data allow us to identify a weak tail in the sample, highlighting vulnerabilities not detected in aggregate data.

The main conclusion of the analysis is that the weak tail of firms with high and unsustainable leverage is sizable in the periphery, mainly in Portugal and Spain, calling for continued vigilance by supervisors on bank asset quality.[14] Debt sustainability is defined as the capacity of firms to generate sufficient cash flows over the medium term to at least keep the debt level stable, while maintaining current levels of capital expenditures and dividend payments. If a firm is in the weak tail, this does not mean that it will default on its debt; rather, it will need to take measures (such as cutting operating costs, dividends, and capital expenditures) to bring its debt down to a sustainable level. A comparison of vulnerability indicators between the sample of listed firms and the entire corporate sector suggests that the risks highlighted in the exercise are likely to be greater in the broader corporate sector, including in Italy, as SMEs are often hampered by high debt levels, low profitability, and higher funding costs (Table 1.1).

The ability of firms to service debt—measured by the interest coverage ratio—is much weaker in the periphery than in the core (Figure 1.28). These stresses are already showing up in fast-rising corporate nonperforming loans (NPLs) at banks in the periphery.

enable them to organically reduce debt over time. The size of the debt overhang is estimated as the required debt reduction such that interest expense declines and net free cash flows become positive.

[12]Net free cash flows is defined as operating cash flows before interest minus interest expense net of taxes minus capital expenditures and minus dividends.

[13]The sample includes about 1,500 publicly traded companies, with average coverage of 30 percent of the corporate sector by assets.

[14]In Spain, construction companies are included in the sample and are partly responsible for the sizable weak tail. The risks for bank asset quality are mitigated by the fact that most of the real estate loans of the weakest (Group 1 and Group 2) banks have been transferred to the SAREB.

Table 1.1 Selected Euro Area Countries: Vulnerability Indicators in the Corporate Sector
(2011 or latest available; in percent)

	France		Germany		Ireland		Italy		Portugal		Spain	
	sample	system	sample	system	sample	system	sample	system	sample	system	sample	system
Leverage												
liabilities/assets	66	…	67	…	58	…	67	…	73	67	70	57
debt/assets	27	…	30	…	30	…	35	33	47	37	41	41
Profitability												
EBIT/assets	6.2	…	6.5	…	7.9	…	6.0	…	5.4	3.2	5.9	3.8
net income/equity	8.5	…	11.2	…	11.0	…	4.0	1.2	7.9	3.2	9.0	…
Interest coverage ratio (ICR)												
EBIT/interest expense												
percent of debt with ICR <1	6	…	9	…	12	…	20	31	14	36	7	40
percent of firms with ICR <1	9	…	8	…	41	…	16	23	32	24	31	35

Source: Central bank data; and IMF staff estimates.

Note: EBIT = earnings before interest and taxes. "System" denotes the highest level of coverage available from national central banks. "Sample" denotes listed firms. The shading is used only for those countries and indicators where a comparison is possible. System data for Spain are unconsolidated.

In our forward-looking exercise of debt sustainability, we project net free cash flow over the medium term. Net free cash flows are forecasted based on assumptions on GDP growth and interest rates under the World Economic Outlook (WEO) baseline, the euro area upside, and the euro area downside scenarios (see the April 2013 *World Economic Outlook*). Financial fragmentation measured by interest rates in this exercise is substantially reduced in Portugal under the WEO baseline and in other periphery countries under the euro area upside scenario.

The weak tail of highly leveraged firms with projected negative net free cash flows is substantially larger in some periphery countries than in the core, particularly in Portugal and Spain (Figure 1.29).

The size of the debt overhang is particularly large in Italy, Portugal, and Spain. To achieve nonnegative net free cash flows in the medium term, corporate leverage in these countries would have to be reduced by 6–11 percent of assets under the baseline and to converge to the levels in the core under the downside scenario with continued fragmentation and lower growth (Figure 1.30).

The above analysis underscores the urgent need for restructuring and consolidation in the periphery corporate sector, where a range of measures will be needed to smooth deleveraging (Figure 1.31). While large diversified companies may sell assets—including foreign units—to reduce leverage, potential profitable sales are likely to negatively affect their revenues and earnings going forward. Furthermore, additional cuts in operating costs, dividends, and capital expenditures may also be required, posing additional risks to growth and market confidence. Thus, a move to the upside scenario with reduced fragmentation and productivity gains from restructuring will be critical to lower funding costs and support orderly deleveraging. In special cases, where the debt overhang issue is systemic, a mandatory suspension of dividends can be considered as a policy option, as well as principal reduction workouts.[15]

In addition, the strains in the corporate sector may further undermine bank asset quality. While the recently conducted EU-wide and national bank stress testing exercises have helped strengthen capital buffers, continued bank supervisory vigilance is needed. Second-round effects from lower capital expenditures and higher unemployment may lead to an increase in a wider range of NPLs, including mortgages.

More work lies ahead.

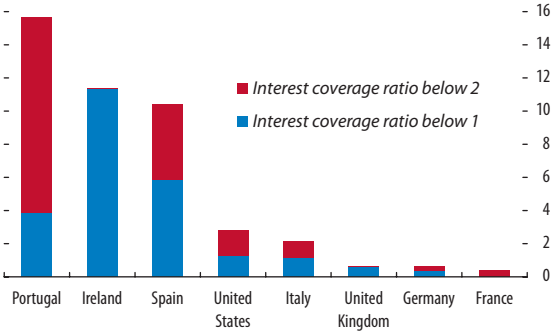
Sustaining confidence in the euro area and further reducing financial fragmentation are essential for maintaining financial stability and supporting economic recovery. This will require advancing steadily toward banking union and completing the remainder of the euro area reform agenda. Furthermore, given the interrelated challenges of weak banks and weak nonfinancial firms, it is important to put in place a comprehensive set of policies (1) to facilitate consoli-

[15]Periphery countries are already taking steps to address high corporate leverage—including through strengthened corporate insolvency frameworks, initiatives to promote nonbank credit, and tax measures to reduce debt bias.

The debt overhang leads to limited capacity to service debt.

Figure 1.28. Share of Firms with High Leverage and Low Interest Coverage Ratio, 2011

(In percent of debt of all sample firms)



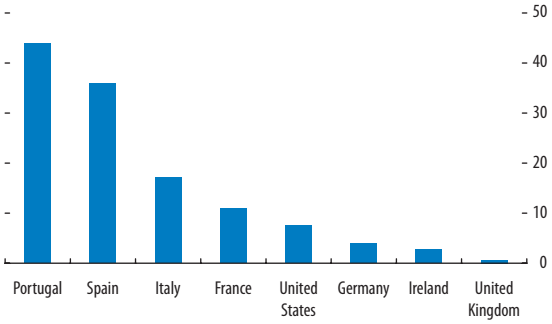
Sources: Worldscope; and IMF staff estimates.

Note: EBITDA = earnings before interest, taxes, depreciation, and amortization. High leverage is defined as leverage above 30 percent, which corresponds to pre-credit-boom levels in the periphery and current debt levels in the core. Firms with no debt or interest expense are not included in the calculations. The interest coverage ratio is defined as EBITDA divided by interest expense.

The weak tail of listed firms is large in some periphery countries.

Figure 1.29. Share of Firms with High Leverage and Negative Net Free Cash Flow

(In percent of assets of all sample firms; baseline projections; 2013–18 averages)



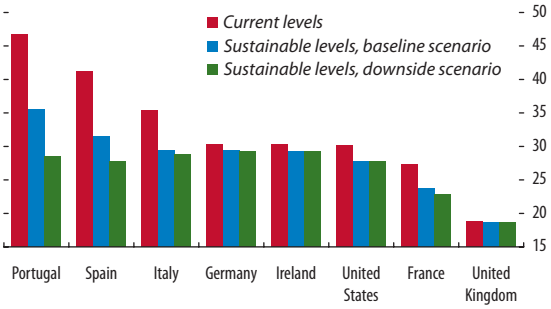
Sources: Worldscope; and IMF staff estimates.

Note: Net free cash flow (NFCF) is operating cash flow before interest expense minus interest expense net of taxes minus capital expenditures minus dividends. Firm-specific NFCF is projected on the basis of assumptions on growth and interest rates under the World Economic Outlook baseline.

Restoring debt repayment capacity in the periphery could require reducing leverage to levels in the core.

Figure 1.30. Required Reduction in Leverage Under Different Scenarios

(Debt in percent of assets of all sample firms; 2011 and projections over 2013–18)



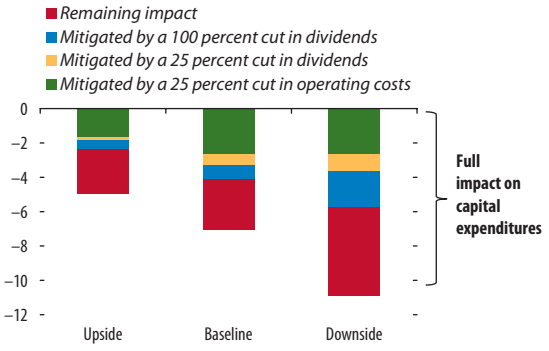
Sources: Worldscope; and IMF staff estimates.

Note: Firm-specific net free cash flow (NFCF) is projected on the basis of assumptions on growth and interest rates under the World Economic Outlook baseline and the euro area downside scenarios. Sustainable leverage levels are determined on a firm-level basis. For firms with high leverage and negative NFCF, sustainable leverage levels are defined as the levels at which firms achieve zero NFCF. For the rest of the sample, leverage levels are unchanged. The differences between the 2011 and sustainable leverage levels represent the required reduction in aggregate debt as a percent of assets.

Cuts in operating costs and dividends will be needed to mitigate cutbacks in capital expenditures, but a move to the upside scenario with reduced fragmentation will be critical.

Figure 1.31. Required Cuts in Capital Expenditures to Stabilize Debt of Euro Area Periphery Firms with High Leverage and Negative Net Free Cash Flow

(In percent of capital expenditures of all firms; projections over 2013–18)



Sources: Worldscope; and IMF staff estimates.

Note: Firm-specific net free cash flow (NFCF) is projected on the basis of assumptions on growth and interest rates under the World Economic Outlook baseline, euro area upside, and euro area downside scenarios. Cumulative cutbacks in capital expenditures are calculated for firms with high leverage and negative NFCF as the decline in capital expenditures necessary to achieve zero NFCF by 2018. Furthermore, sensitivity analysis is perfomed to estimate the impact on the decline in capital expenditures if: (1) operating costs are reduced by 25 percent and (2) dividends are reduced by 25 percent and by 100 percent.

dation and restructuring of the corporate sector in countries where businesses suffer from debt overhang; (2) to support healthy firms that are facing credit constraints (in part due to banking sector weaknesses); and (3) to complete banking sector repair. These policies are discussed in detail in the final section of this chapter.

Banking Challenges: Deleveraging, Business Models, and Soundness

Healthy banks support economic recovery. But five years after the start of the crisis, banking systems are still in different stages of balance sheet repair, with U.S. banks most advanced and some European banks requiring further significant adjustment. A number of banks in the euro area periphery, in particular, face significant structural challenges and cyclical headwinds—elevated funding costs, deteriorating asset quality, and weak profitability—that are impairing their ability to support economic recovery. While immediate pressures are less acute for other European banks, the process of balance sheet de-risking and deleveraging is not complete and further progress is needed.

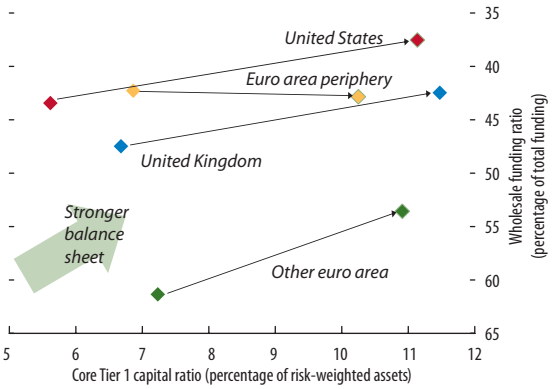
Banks in the United States and Europe have taken significant steps to restructure their balance sheets, but progress has been uneven.

Banking systems are at different stages of the balance sheet repair process. While European and U.S. banks have substantially increased their regulatory capital ratios (Figure 1.32), leverage and reliance on wholesale funding remain relatively high in the core euro area banks (Figure 1.33).

Figure 1.34 plots the rankings of large banking systems based on the four balance sheet indicators of loss-absorption capacity, asset quality, profitability, and reliance on wholesale funding. The closer a banking system is to the center, the more adjustment it still needs to undertake, compared with the other banking systems shown in the figure.[16]

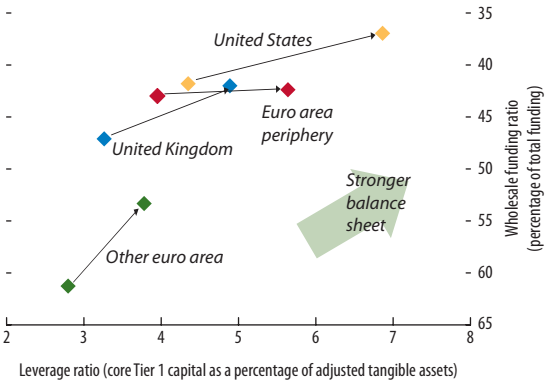
[16]Detailed assessments of individual countries' financial systems and supervisory frameworks are carried out in the context of the IMF's Financial Sector Assessment Program (FSAP), www.imf.org/external/NP/fsap/fsap.aspx.

Figure 1.32. Bank Core Tier 1 and Wholesale Funding Ratios, 2008:Q4 to 2012:Q3



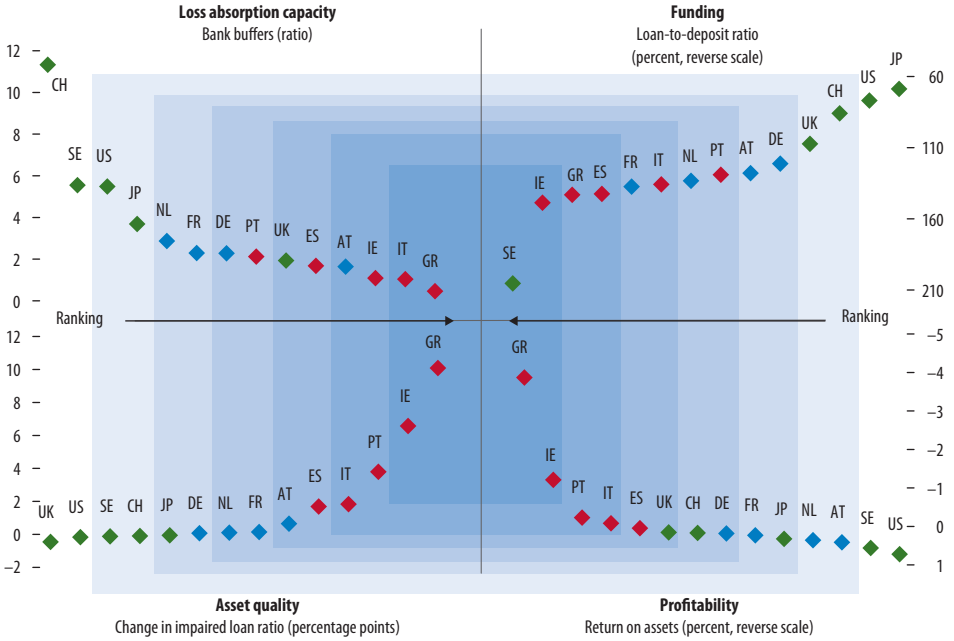
Sources: SNL Financial; and IMF staff estimates.
Note: Euro area periphery = Cyprus, Greece, Ireland, Italy, Portugal, and Spain. Wholesale funding is debt, repo, and interbank deposits. Total funding is wholesale funding plus customer deposits.

Figure 1.33. Bank Leverage and Wholesale Funding Ratios, 2008:Q4 to 2012:Q3



Sources: SNL Financial; and IMF staff estimates.
Note: For European banks, tangible assets are adjusted by subtracting derivative liabilities, but some differences in accounting definitions may remain. Wholesale funding is debt, repo, and interbank deposits. Total funding is wholesale funding plus customer deposits.

Figure 1.34. Ranking of Banking Systems Based on Banks' Balance Sheet Indicators, 2012:Q3



Sources: Bloomberg L.P.; SNL Financial; and IMF staff estimates.

Note: AT = Austria; CH = Switzerland; DE = Germany; ES = Spain; FR = France; GR = Greece; IE = Ireland; IT = Italy; JP = Japan; NL = Netherlands; PT = Portugal; SE = Sweden; UK = United Kingdom; US = United States. The closer a banking system is to the center of the figure, the more balance sheet adjustment it needs to undertake. Rankings are based on the aggregate position for a large sample of banks headquartered in each country (more than 90 percent of the banking system in most cases) as of 2012:Q3 or as of the latest available data before then. Bank buffers are the ratio of core Tier 1 capital and loan loss reserves to impaired loans as reported in banks' financial statements. The loan-to-deposit ratio is gross loans as a percentage of deposits (for Italy and Spain, adjusted for retail debt). Change in the impaired loan ratio is the annual change in impaired loans as a percentage of gross loans. Return on assets is average annualized retained earnings over the past year as a percentage of tangible assets minus derivatives. See footnotes 17 and 18 in the main text.

Many periphery euro area banking systems remain relatively weak as buffers are low relative to reported impaired loans, asset quality continues to deteriorate, and profitability is poor.[17,18] Some of these issues are being tackled through programs supported by the ECB, the European Commission, and the IMF (Greece, Ireland, and Portugal), through system-wide reforms supported by the European Stability Mechanism (Spain), or through targeted financial sector action aimed at increasing provisions, improving bank efficiency, and strengthening capital and funding plans, where needed (Italy).[19] These banking systems are likely to see further pressure on asset quality amid poor economic growth. However, contingency buffers to cover additional stress have been included under the programs: some banking systems have been recapitalized (Portugal, Spain), while others are expected to receive further capital injections (Greece).

In other banking systems—including in Sweden, the United Kingdom, and a number of core euro

[17]Collateral can be an additional buffer, but data on collateral are typically not publicly disclosed, realization in crisis times is uncertain, and valuation practices differ across countries and banks. These factors also hamper comparisons of additional loss absorption capacity due to collateral buffers.

[18]Cross-country comparisons of nonperforming loans are complicated by differences in definitions. The GFSR uses impaired loans as reported in banks' financial statements. While European banks follow IAS/IFRS accounting rules, their reporting of impaired loans may be influenced by prudential requirements. Taking the case of Italy, for example, the impaired loans reported by banks are broadly defined and include four categories: doubtful (or bad), substandard, restructured, and past due. If one were to focus on the top five banks and use bad loans only, which is the most narrow definition, Italy's rankings in asset quality and loss absorption capacity (Figure 1.34) would improve by one notch.

[19]The IMF FSAP for Spain was completed in June 2012 (IMF, 2012a), and more information is available in the Second Progress Report (IMF, 2013b). The IMF FSAP for Italy is ongoing (the press release of the Italy FSAP mission can be found at imf.org/external/np/sec/pr/2013/pr1394.htm).

area countries—asset quality is stable, but certain balance sheet weaknesses remain. In some of these banking systems, buffers against impaired loans are not as strong as in their peers (Austria, the United Kingdom); in others (core euro area, Sweden), leverage and reliance on wholesale funding are still relatively high.[20] While major U.K. and core euro area banks have been actively de-risking and deleveraging—as is discussed below—more needs to be done to complete the repair of their balance sheets. Moreover, some segments in the core euro area banking system (e.g., Landesbanks) are still in need of restructuring and consolidation.[21]

A third group of banking systems shown in Figure 1.34—including those of Japan, Switzerland, and the United States—is in a relatively better position. The loss-absorption capacity is higher, asset quality is more stable, and reliance on wholesale funding is lower. Nonetheless, these banking systems still face a number of challenges related to future profitability and business models, as is discussed later in this section.

Profitability and asset quality will be further pressured by the weak economic environment.

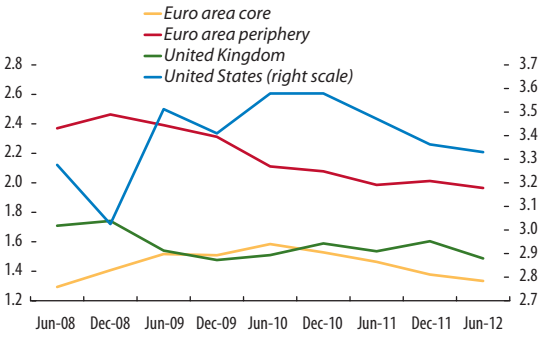
While funding conditions have improved (see the section on the Euro Area Crisis), concerns about asset quality and profitability have moved to the forefront. A prolonged period of low interest rates will likely put pressure on banks' pre-provision profits.[22] Net interest margins (NIMs) of many advanced economy banks have been on a declining path for a number of years (Figure 1.35), with pressures from low policy rates becoming more acute for banks that offer fixed-rate savings products to customers. NIMs of the periphery banks have been relatively stable throughout 2012, having been supported by the interest income from their LTRO-funded holdings

[20]These concerns were flagged by the Bank of England (2012) and in the FSAPs for France (IMF, 2012d) and Sweden (IMF, 2011b); the IMF FSAP for Austria is ongoing.

[21]See the FSAP for Germany (IMF, 2011a).

[22]For example, in the recent Dodd-Frank stress test in the United States (released on March 7, 2013), a prolonged period of low interest rates was the key driver of the low pre-provision net revenues of U.S. banks (Board of Governors of the Federal Reserve System, 2013).

Figure 1.35. Average Net Interest Margins
(In percent)



Sources: Bloomberg L.P.; and IMF staff estimates.
Note: Euro area core = Austria, France, and Germany. Euro area periphery = Italy and Spain. Net interest margin is in percent of average interest-earning assets.

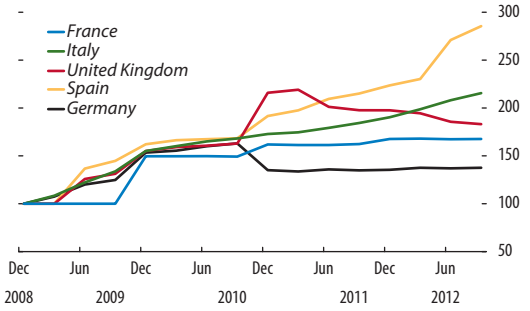
of sovereign bonds. Although some U.S. banks have been able to offset NIM pressures by writing back some of their loan loss reserves (as asset quality continued to improve), there will be less scope for this strategy in the future.

The weak economic environment is likely to lead to further worsening in asset quality, and the resulting larger provisions may absorb an increasingly large share of already weak operating earnings (Figures 1.36 and 1.37). Banks that are more exposed to economies with poor growth prospects are more vulnerable to a further deterioration in asset quality. Figure 1.38 plots a measure of bank buffers against the growth forecast of economies to which they are exposed. Some banks (mainly from the euro area periphery) have both low levels of buffers and exposures to weak economies, making them most vulnerable to a downturn. In some cases, the asset quality concerns are exacerbated by the fact that banks are holding hard-to-value assets (for example, commercial real estate exposures).[23]

Furthermore, litigation risks continue to be a headwind to earnings for major banks in Europe and the United States. The LIBOR scandal and several other high-profile fines and lawsuits related to compliance failures and misselling allegations continue to weigh on banks' profits. In the United States, banks continue to work through legacy mortgage

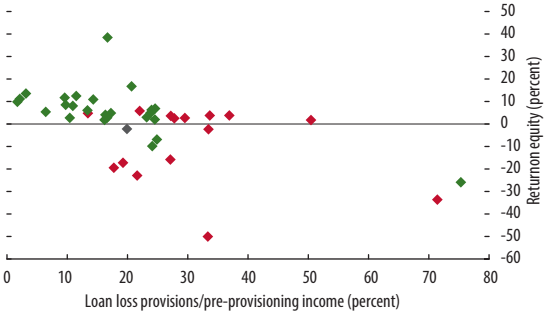
[23]Some of these assets have been moved to asset management companies (for example, in the case of Spain).

Figure 1.36. Impaired Loans in Selected EU Countries
(2008:Q4 = 100)



Sources: SNL Financial; and IMF staff estimates.
Note: Ratio of the stock of impaired loans to the stock of gross loans. The definition of impaired loans differs across countries. See footnote 18 in the main text.

Figure 1.37. EU Banks' Asset Quality and Profitability



Sources: Bloomberg L.P.; and IMF staff estimates.
Note: The sample consists of large EU banks. Red diamonds are banks in Italy, Portugal, and Spain; green diamonds are banks in Austria, Denmark, France, Germany, Hungary, Poland, Sweden, and the United Kingdom.

issues that have resulted in litigation and mortgage repurchase liabilities.

Uncertainty over asset valuations and risk weights is reinforcing investor concerns.

Bank asset quality and capital adequacy tend to be scrutinized by investors, especially when the economy is weak. If these are hard to ascertain from reported data, for example, due to differences in disclosure in financial statements, investors demand higher risk premiums, which further raises bank funding costs. Two major issues are of concern:

- First, regulators and market participants are concerned that some banks may be engaging in lender forbearance.[24] In some cases, this is done to smooth the recognition of impaired loans, especially if banks have low profits and thin capital buffers, or where legal frameworks make it difficult to resolve problem loans. Even if it ultimately benefits both the lender and the borrower, lender forbearance can make it difficult to assess the quality of assets and to estimate the full scale of potential losses and required provisions and capital.
- Second, there are significant uncertainties around the calculation of risk-weighted assets. Analysts have long felt that the dispersion of risk weights across banks is too wide to be fully explained by accounting, regulatory, and business model differences. Figure 1.39 also suggests that average risk weights for banks vary significantly for any given riskiness of balance sheets, as proxied by loan and trading losses. Indeed, the Basel Committee on Banking Supervision recently found that the full scope of the market risk-weight dispersion cannot be explained by publicly available information (BCBS, 2013).[25] Other regulatory studies of risk weights on banking books have reached similar conclusions.[26]

Cyclical and structural pressures force banks to change their funding models . . .

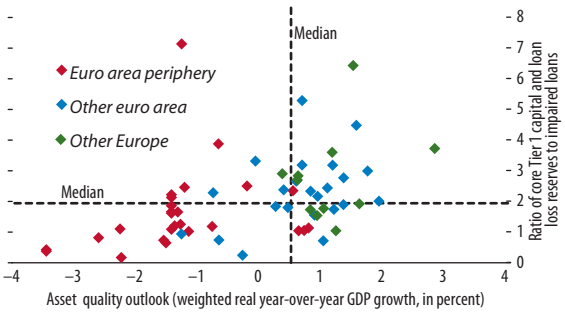
Although large institutions continue to play a dominant role in the global banking system, markets and regulators are putting pressure on banks

[24]According to the European Banking Authority (2013a), "forbearance, though not universal, is widespread" (p. 3). The Bank of England (2012) also expressed concerns that banks were forbearing on loans and that this may have contributed to doubts about the valuation of bank assets; those doubts could in turn act as a drag on credit supply, and ultimately aggravate credit risks currently being contained by forbearance.

[25]The study highlighted two main sources of dispersion: (1) variations in the models used by banks and (2) differences in supervisory practices, including the use of supervisory multipliers.

[26]In its interim report on the consistency of risk-weighted assets in the banking book, the European Banking Authority (EBA, 2013b) said that about half of the variation between banks' risk-weighted assets is justified by differences in balance sheet structures and/or regulatory approaches (standardized versus internal ratings–based [IRB] approach), the rest is attributed to differences in risk parameters applied under the IRB approach. The EBA concluded that further bottom-up analysis is necessary to assess the reasons behind such discrepancies.

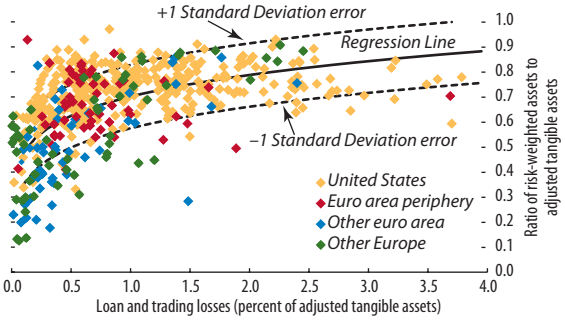
Figure 1.38. Buffers at Individual EU Banks



Sources: Bank for International Settlement (BIS); European Banking Authority; SNL Financial; and IMF staff estimates.

Note: Asset quality outlook refers to 2012–13 real GDP growth in countries where the bank has exposures, weighted by the level of those exposures. Exposure data was taken from the European Banking Authority, updated using information from BIS international statistics. The lines show the median values from the sample. The vertical axis is limited to a ratio of 8 to aid presentation; three banks from "other euro area" and "other Europe" have buffers that are higher.

Figure 1.39. Bank Risk Weights and Impairments, Average for 2008–11



Sources: SNL Financial; and IMF staff estimates.

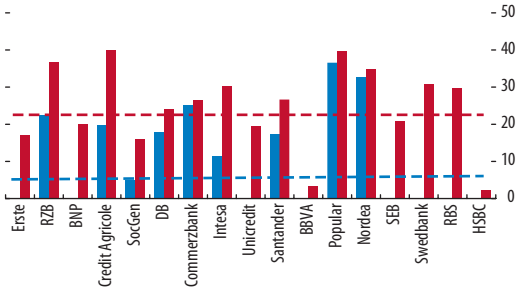
to become smaller, simpler, and more focused on servicing their home markets. Banks are altering the liabilities side of their balance sheets to reduce their use of wholesale, short-term, and cross-border funding. This is in response to (1) the wholesale funding runs during the crisis; (2) the higher cost of wholesale funding, particularly where there is the prospect of bailing-in senior debt holders; (3) Basel III liquidity requirements (which favor more stable funding sources); and (4) the increased incidence of regulatory ring-fencing of bank liquidity and capital along national lines (in part because of the slow progress in establishing robust cross-border resolution frameworks). For U.S. banks, strong deposit growth and weak loan demand have helped to reduce their reliance on wholesale funding. For some European banks, where reliance on wholesale funding is much higher (see Figure 1.34), these structural pressures are more acute.

Some internationally active banks are increasingly aiming to match their assets and liabilities on a country-by-country basis in a move to make their subsidiaries self-funded over time, which in a number of cases is encouraged by regulators. This trend has been playing out at a faster pace in the euro area, in part because of concerns about redenomination risk, but it is also happening in other advanced economies, and the trend is viewed as hard to reverse, which can potentially increase and entrench financial fragmentation. Furthermore, the transition to this new cross-border banking model may add to deleveraging pressures. For many banks, matching assets and liabilities on a country-by-country basis means that they would have to close larger deposit funding gaps (Figure 1.40). One way of closing the gaps is by raising deposits or other funding locally; another way is by reducing lending. Encouragingly, recent trends suggest that foreign subsidiaries of large EU banks (notably those operating in eastern Europe) have been fairly successful in raising local deposits.

In addition to greater regulatory scrutiny over intragroup cross-border transfers, new regulations are being put in place that require affiliates of foreign banks to hold more capital and liquidity locally. For example, the Federal Reserve has recently released proposals to require operations of foreign banks to establish a holding company structure over all bank

Figure 1.40. Deposit Funding Gaps of Foreign Subsidiaries of Large EU Banks

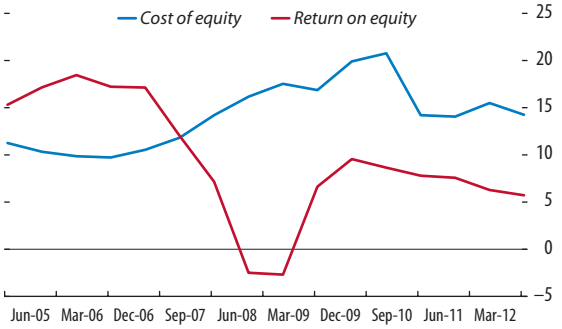
(In percent of loans)



Sources: Bankscope; SNL Financial; and IMF staff estimates.

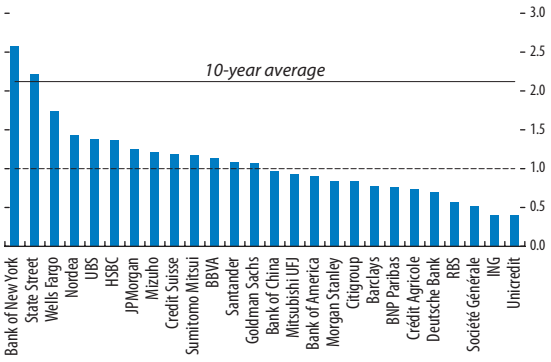
Note: Deposit funding gap is the difference between loans and deposits; blue bars show the gaps computed using aggregate loans and deposits of foreign subsidiaries of each bank; red bars are sums of gaps computed for each of the subsidiaries; the dotted lines show sample averages for blue and red bars. Data are as of end-2011 or latest available.

Figure 1.41. Average Return on Equity, and Cost of Equity
(In percent)



Source: Bloomberg L.P.
Note: The cost of equity is derived using the Capital Asset Pricing Model (CAPM). The sample consists of global systemically important banks.

Figure 1.42. Ratio of Equity Price to Tangible Book Value, April 2013



Source: Bloomberg L.P.

and nonbank subsidiaries operating in the United States. These holding companies will be subject to the same capital and liquidity requirements as U.S. bank holding companies. These measures may cause some European banks to rethink the scale of their operations in the United States.

. . . and to rationalize their business mix.

Regulatory changes (Basel 2.5, Basel III, and structural measures aimed at prohibiting or ring-fencing risky activities—Vickers, Volcker, Liikanen), as well as market pressures, are forcing banks to focus on fewer and less capital-intensive business lines. Pressures to raise the return on equity, which remains below the average cost of equity (Figure 1.41), and raise market valuations, which are still well below historical averages (Figure 1.42), are forcing banks to concentrate on cutting costs, exiting business lines where they do not have critical mass, and enhancing fee and commission income.[27] Recent examples suggest that such a strategy is rewarded by shareholders.[28]

[27]Several structural measures introduced or contemplated by regulators (see the section on Policies for Securing Financial Stability and Recovery) are effectively discouraging proprietary trading. The profitability of banks engaged in investment banking activities may thus become more reliant on customer flows and hence on their market share.

[28]UBS's stock price rose 18 percent in two days following the announcement that it was cutting 10,000 jobs and exiting the fixed-income business; Citigroup and Barclays made similar moves.

Operational restructuring by banks to increase efficiency, while a welcome development, could still have negative consequences as banks pull out of certain activities. Fewer players in any given market entails higher concentration risk. It also means that market liquidity could decline, or would at least be dependent on a smaller number of banks, potentially exacerbating asset volatility particularly in a crisis.

As a result, European banks continue to de-risk and deleverage their balance sheets.

Large EU banks have continued to reshape their balance sheets via capital raising, liability management, and asset reduction, with cutbacks in total assets broadly on track with the baseline scenario described in the October 2012 GFSR. This has helped to strengthen banks' financial positions, as discussed, and also confirms that the worst-case outcome (as in the weak policies scenario of the October 2012 GFSR) has been avoided thanks to swift policy responses. Table 1.2 shows changes in bank balance sheets from 2011:Q3 to 2012:Q3 in gross terms (only those banks that cut back assets) and in net terms (all banks, including those that increased assets) and compares them with the October 2012 GFSR deleveraging estimates, which are used here as a benchmark.[29]

[29]The GFSR deleveraging exercise focused on instances where banks were expected to cut back assets due to structural and cyclical pressures. The exercise did not aim to produce estimates of balance sheet expansions, which are typically driven by bank-specific considerations. Nonetheless, the possibility that expansion at stronger banks may offset the shrinkage at weaker banks was discussed. The difference between gross and net numbers in

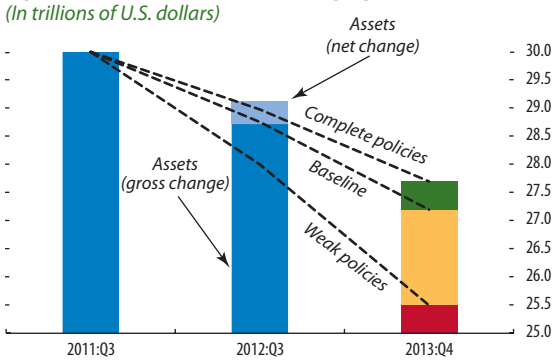
Table 1.2. Deleveraging Progress, 2011:Q3–2012:Q3
(In trillions of U.S. dollars)

	Banks with Deleveraging Plans		Banks with Projected Deleveraging Due to Other Factors		Banks with No Projected Deleveraging		Overall Position		October 2012 GFSR Scenarios (2011:Q3–2013:Q4)			Progress against GFSR Baseline
	Gross	Net	Gross	Net	Gross	Net	Gross [a]	Net	Complete	Baseline [b]	Weak	[a]/[b] (in percent)
Tangible assets (less derivatives)	–0.8	–0.7	–0.2	0.3	–0.0	0.0	–1.0	–0.4	—	—	—	—
Tangible assets (less derivatives and cash)	–1.0	–0.9	–0.2	0.1	–0.0	–0.0	–1.3	–0.9	–2.3	–2.8	–4.5	46
Risk-weighted assets	–0.4	–0.3	–0.3	–0.2	–0.0	–0.0	–0.7	–0.6	–0.8	–1.0	–1.9	71

Sources: SNL Financial; and IMF staff estimates.

Note: For a sample of 58 large EU banks (see the April 2012 GFSR for a description of the sample). Gross shows the results for banks in the sample that cut back balance sheets. Net shows the change for all banks in the sample. The table is rounded to the nearest 0.1 trillion.

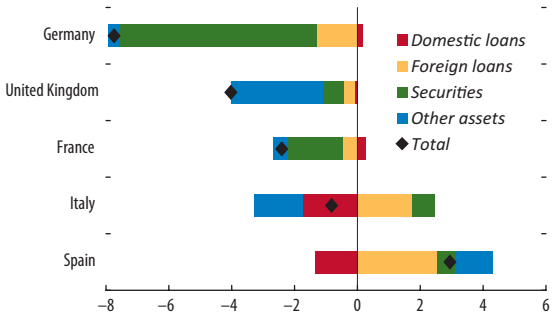
Figure 1.43. GFSR EU Bank Deleveraging Scenarios
(In trillions of U.S. dollars)



Sources: SNL Financial; and IMF staff estimates.

Note: For a sample of 58 large EU banks. The gross change in assets shows only banks that have cut back their balance sheets. The net change shows all banks. Excludes cash, derivatives, and intangible assets. See the October 2012 GFSR for a description of the scenarios.

Figure 1.44. Large EU Banks: Contributions to Change in Balance Sheets 2011:Q3–2012:Q3
(In percent)



Sources: Bank financial statements; SNL Financial; and IMF staff estimates.

Note: Based on consolidated data for a sample of large banks headquartered in each country. Excludes cash, derivatives, and intangible assets. Domestic loans exclude mergers.

Tracking progress on a gross (net) basis, large EU banks have cut back assets in line with the baseline (complete) policies scenario of the October 2012 GFSR, while they have reduced their risk-weighted assets in line with the weak (baseline) policies scenario (see Table 1.2 and Figure 1.43). This is because banks have concentrated on (1) reducing capital-intensive (high-risk-weight) businesses; (2) steering loan portfolios to those with lower risk weights; (3) holding greater liquidity buffers of cash and government bonds with zero risk weights; and in some cases, (4) optimizing risk-weight models.[30]

So far, asset cutbacks have been undertaken mostly by banks with publicly announced deleveraging plans (including those under the EU state-aid rules) and have mostly involved assets other than loans (Figure 1.44). Banks that had their plans drawn up prior to the LTROs (and hence before the announcement of the OMT) have not scaled them back following the easing in market conditions that followed these events, and some banks announced new plans (see Annex 1.2 for details).

Table 1.2 shows the extent to which this has been the case in the sample of large EU banks. It should also be noted that the key metric for assessing the impact on the real economy in the April 2012 and October 2012 issues of the GFSR was the provision of credit, not change in bank assets. The estimates of credit supply were constructed on a country-by-country basis taking into account diverging credit trends between sample and out-of-sample banks (consistent with net concept).

[30]The decline in risk-weighted assets would likely have been larger if risk weights on the trading book had not been raised (under Basel 2.5) at the same time as banks cut back their positions.

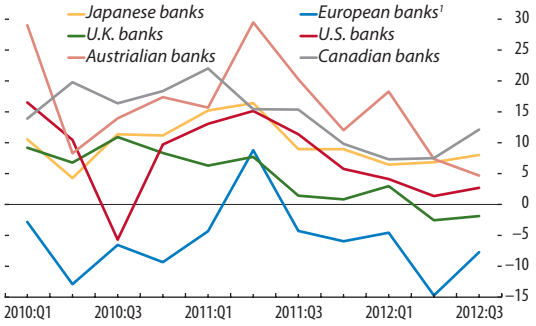
However, banks have reduced their balance sheets in very different ways. Some have focused on asset disposals. For example, German banks created noncore units to gradually wind down legacy assets (trading, commercial real estate, shipping, and public finance exposures); French banks completed their 2011 adaptation plans to reduce U.S. dollar funding needs and commercial and investment banking exposures, and also sold their Greek subsidiaries; U.K. banks have largely reduced noncore assets (trading portfolios and loans in Ireland, the United Kingdom, and the United States); and large Italian and Spanish banks reduced domestic lending, while expanding foreign loans (mainly in emerging market economies where deposit levels have grown) and domestic government bond holdings. In addition, Italian banks have reduced other assets.

As banks continue to reduce their balance sheets, in addition to cutting back noncore assets, banks may need to restructure or shrink their loan books, which may be more challenging. As the credit quality of loan books continues to deteriorate, especially in the euro area periphery, banks with relatively low capital buffers will be less able to crystallize losses, and therefore, less able to reduce the drag from impaired assets on new lending. Furthermore, the lack of a well-functioning market for distressed bank assets may force banks to reduce their loan books by rolling off rather than selling loans, and in some cases forbear by amending the terms of NPLs, which could consume capital and put a drag on banks' ability to extend new loans to productive sectors.

As European banks have reduced foreign lending, other banks with stronger balance sheets have stepped in to fill in the gap.

Asian and North American banks' foreign claims continued to grow (Figure 1.45). For example, Japanese banks' foreign credit recovered steadily in 2010; the growth was concentrated in syndicated lending in Asia, where they were well positioned to capture market share as European banks reduced their exposures. As a result, foreign exposures of the top three Japanese banks rose to almost 20 percent of their loan book.

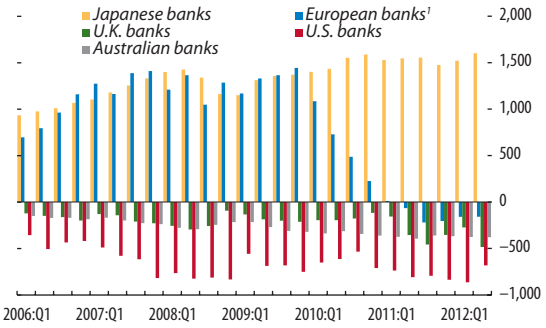
Figure 1.45. Banks' Foreign Claims on All Regions
(Year-over-year change, in percent)



Source: Bank for International Settlements.
[1]European banks excludes U.K. banks.

The foreign expansion of Japanese banks has increased their reliance on external funding, which involves foreign currency liquidity risk that has to be managed. Foreign credit provided by Japanese banks is denominated largely in dollars. And although Japanese banks have raised additional foreign currency funding in the form of retail or corporate deposits, they also had to raise this funding in wholesale markets or rely on the swap market to swap yen deposits into dollars. The Japanese banking system's external funding position—the difference between its foreign assets and liabilities—has thus increased to $1.6 trillion (Figure 1.46). In contrast, the Australian, U.K., and U.S. systems all have substantial net surplus positions, while other European banks have cut their funding position from $1.5 trillion to below zero by

Figure 1.46. Net Foreign Assets Position
(In billions of U.S. dollars)



Source: Bank for International Settlements.
Note: Foreign claims minus foreign liabilities (excluding transactions with related foreign offices).
[1]European banks excludes U.K. banks.

reducing their U.S. dollar lending. Japanese banks' relatively large external funding position exposes them to shocks to the availability, maturity, and cost of foreign currency funding. That said, Japanese banks have shown resilience to such shocks in the past and are limiting the liquidity risks by matching the maturities of external assets and liabilities and by holding highly liquid foreign government securities.

Healthy banks are needed to support recovery.

Past GFSRs have warned about the risks of European bank deleveraging being either too large, too fast, or too concentrated in a few sectors or economies. Policy actions have helped to mitigate those risks, and European banks have made progress in de-risking and deleveraging their balance sheets; but the process is not complete. Policymakers need to encourage financial institutions to continue deleveraging in a "healthy" and growth-friendly manner, that is, by raising equity levels as well as by cutting business lines that are no longer viable.

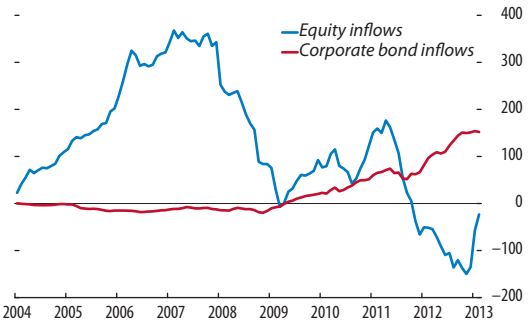
Moreover, given the risk of a prolonged economic slowdown, the necessary adjustment may be delayed. Banks with weak capital buffers may be more reluctant to recognize losses, causing them to restrain lending to viable firms, which would reinforce weakness in the corporate sector and lead to further deterioration of credit quality of bank loans. Hence, a comprehensive set of policies is needed to address *both* weak banks and weak nonfinancial firms (as discussed in the section on the Euro Area Crisis).

Outside Europe, banks are also under pressure to change their business models to improve profitability. New financial stability risks (related to rapid cross-border expansions, increased concentration in certain markets, and shift of certain financial intermediation activities from the banking sector to the nonbank sector) may emerge as a result of these changes and require monitoring.

Rising Stability Risks of Accommodative Monetary Policies

Highly accommodative and unconventional monetary policies in advanced economies are providing essential support to aggregate demand, but there is growing tension between these policies and future risks to financial stability.[31] *Vulnerabilities are growing in U.S. credit markets while pension and insurance companies are under increased strain, moving into higher-risk assets. Reduced market liquidity could amplify the effects of any future increase in risk-free rates. Monetary policy needs to stay highly accommodative to meet macroeconomic goals, but macroprudential and other tools should be employed in a measured manner to lean against undesirable credit excesses.*

Figure 1.47. Global Mutual Fund and Exchange-Traded Fund Flows
(Cumulative, in billions of U.S. dollars)



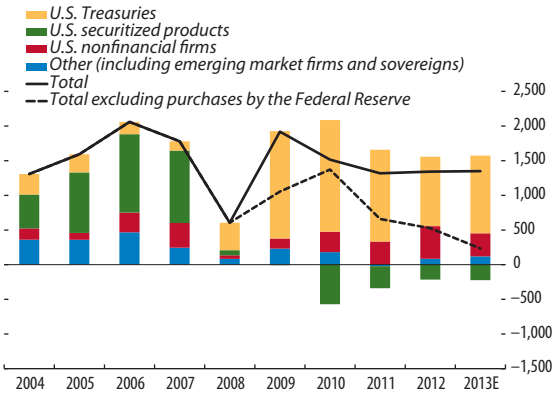
Sources: EPFR Global; and IMF staff estimates.

Monetary policy easing has pushed beyond conventional means in the effort to counter a weak recovery. In several advanced economies, asset purchases and commitments to a long duration of low interest rate policies have supplemented traditional policy easing. This approach has been essential to support the recovery.

As intended, these policies are generating a substantial rebalancing of private investor portfolios toward riskier assets. This trend is dominated by corporate credit markets and amplified by constrained net supply of fixed-income instruments, after accounting for central bank purchases (Figures

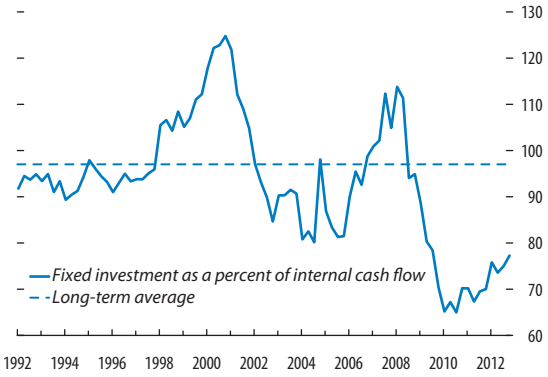
[31]This section evaluates the financial stability risks from unconventional policy through the lens of credit misallocation in nonbank sectors in advanced economies and spillovers to emerging market economies, while Chapter 3 includes an empirical analysis of the impact on bank soundness. Also see Chapter 3 in the April 2013 *World Economic Outlook*.

Figure 1.48. Net Issuance of Fixed-Income Securities
(In billions of U.S. dollars)



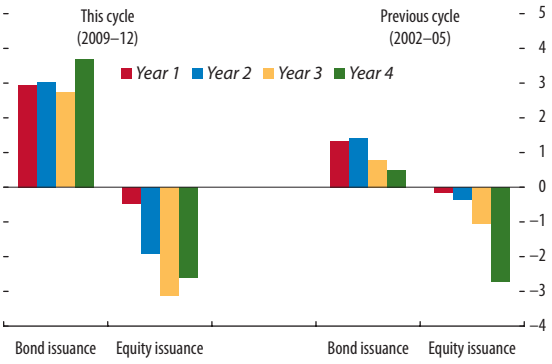
Sources: Federal Reserve; government sources; JPMorgan Chase; Morgan Stanley; and IMF staff estimates.
Note: Issuance assumptions for 2013 are based on market consensus; asset purchase projections are based on guidance provided by the Federal Open Market Committee at their September and December 2012 meetings.

Figure 1.49. U.S. Fixed Investment Spending versus Internal Cash Flow
(In percent)



Sources: Federal Reserve; Haver Analytics; and IMF staff estimates.

Figure 1.50. U.S. Nonfinancial Corporate Bond Issuance and Equity Buybacks
(In percent of GDP)



Sources: Federal Reserve; Haver Analytics; and IMF staff estimates.
Note: Previous cycle scaled by the ratio of GDP in the current cycle to GDP in the previous cycle.

1.47 and 1.48). Ultra-low short-term interest rates have reduced the cost of debt for corporate borrowers, enabling firms to lengthen their debt maturity profiles and rendering debt servicing ratios more favorable, even at higher debt loads. This comes at a time when traditional valuations of corporate credit show little signs of excess. These developments are healthy, desirable elements of the monetary transmission mechanism.

But other elements of the current credit cycle do not fit a healthy stylized situation. Capital spending remains depressed relative to cash flows (Figure 1.49). Corporate bond issuance is more elevated than usual at this point of the cycle and is increasingly geared toward less-productive uses, such as funding equity buybacks (Figure 1.50). Balance sheet leverage is steadily rising on the back of higher debt levels and slowing earnings (Figure 1.51). Yield-enhancement through financial leverage and weaker underwriting standards are also increasingly prevalent, and in some cases are back to prior cycle peaks.

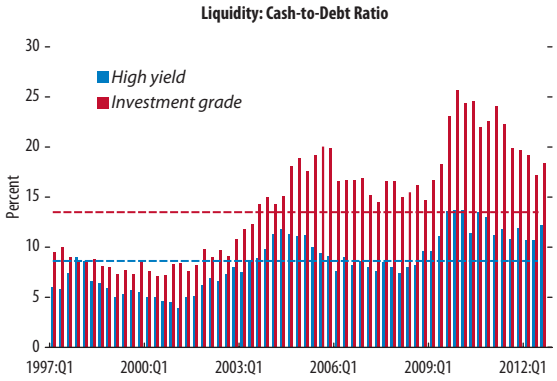
These trends are most relevant to the United States, where unconventional monetary policy has been forceful, the credit cycle is more advanced, capital markets are deeper and play a larger role in credit intermediation, the spillover effects to emerging market economies may be significant, and potential upside economic risks could lead to a faster normalization in monetary policy.[32]

These elements may not pose imminent systemic risk, but they bear close monitoring. A prolonged

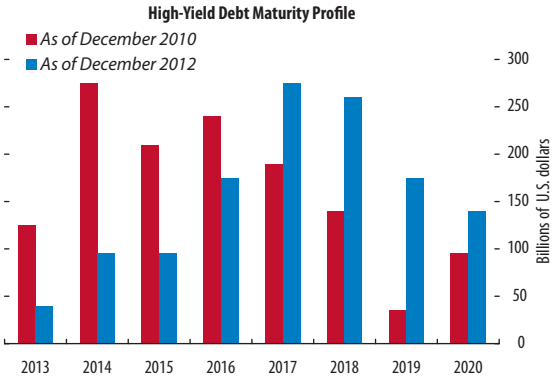
[32]In other advanced economies with accommodative monetary policies, firms are either using a more typical blend of equity and bond financing at this early stage of the cycle or are squarely focused on balance sheet repair and leverage reduction (see the previous section on The Euro Area Crisis). By contrast, in emerging market economies, the decline in corporate borrowing costs has, as in the United States, led to a surge in bond financing, which is also a departure from previous cycles in those economies.

Figure 1.51. U.S. Nonfinancial Firms' Credit Fundamentals

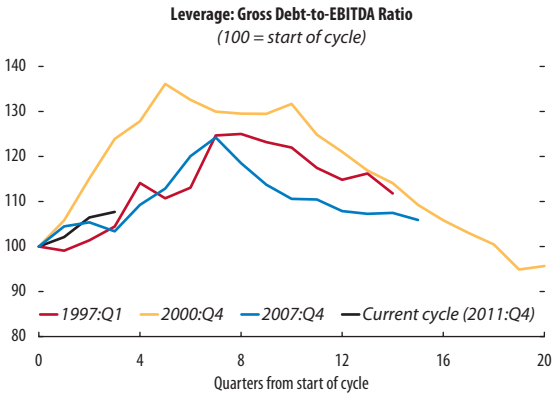
Strong liquidity conditions and record low yields have kept interest expenses in check . . .



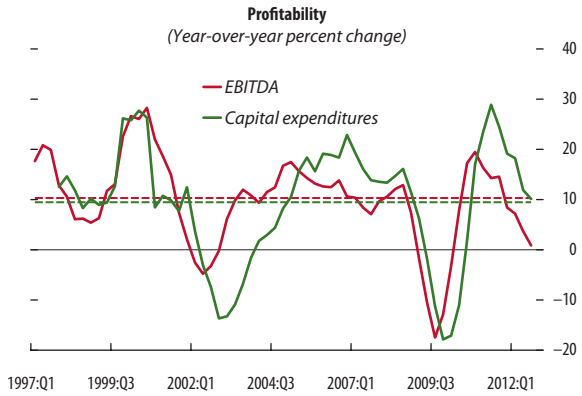
. . .while debt management has reduced near-term refinancing risk.



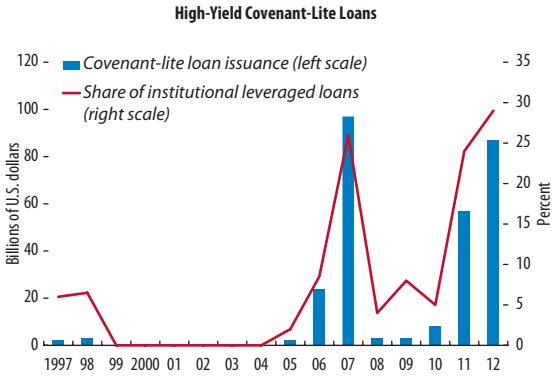
However, corporate leverage is on the rise . . .



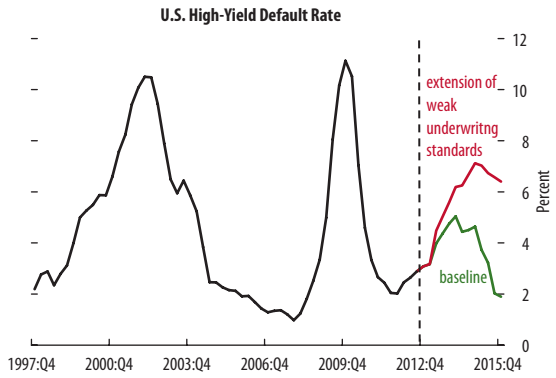
. . . partly because debt is growing while earnings growth is slowing.



Signs of weakening underwriting standards are on the rise . . .



. . . and, if they persist, pose upside risks to default rates.



Sources: Bloomberg L.P.; Citigroup; Federal Reserve; JPMorgan Chase; Moody's; Morgan Stanley; S&P LCD; and IMF staff estimates.

Note: EBITDA = earnings before interest, taxes, depreciation, and amortization. Dashed lines represent long-term averages. Covenant-lite (cov-lite) loans are loans in which borrowers are not obliged to meet quarterly maintenance criteria. For default rate projections in the bottom right panel, the baseline assumes that a falloff in cov-lite issuance starts in 2014:Q3, with lending standards tightening in 2014 and a baseline growth trajectory. The weak scenario assumes that cov-lite issuance continues at the current pace of $15 billion per quarter through end-2014 before abating, accompanied by a further weakening in bank lending standards through end-2015 and a weaker growth trajectory.

period of low interest rates may create incentives to increase leverage beyond manageable levels, extend the decay in underwriting standards, and reinforce the search for yield.

Four channels of instability are emerging from the protracted period of low interest rates and suppressed market volatility:

1. *Growing medium-term vulnerabilities:* Despite the strong starting point for credit fundamentals, corporate credit risk has the potential to be mispriced. Nonfinancial corporate balance sheet leverage is rising, and investor demand for yield enhancement is increasingly evident in the decline of underwriting standards and growing demand for financial leverage. A sharp rise in risk tolerance among various asset managers could add to these vulnerabilities.
2. *Rise in risk-free rates:* There is little to derail current trends, and the rise in leverage appears manageable in an environment of low debt service and sustained earnings. However, the risk is skewed toward future higher government bond yields. Unconventional monetary easing has lowered short-term interest rate expectations and term premiums to rock-bottom levels. A sharp rise in risk-free rates could expose credit vulnerabilities.
3. *Illiquidity could act as an amplifier:* The impact on credit markets has the potential to be amplified by market illiquidity. The shift in broker-dealer business models to reduce credit inventories means that a tightening of credit conditions could have a larger-than-usual market impact.
4. *Spillovers to emerging market economies:* In emerging market economies, corporate borrowers who have recently focused more heavily on U.S. dollar issuance may be vulnerable to a reversal in favorable credit trends.

Credit fundamentals are at a good starting point, but recent trends point to future risks.

The decline in corporate borrowing costs and the rise in demand for credit are consistent with broader, strong fundamentals (see Figure 1.51). Corporate liquidity—cash holdings relative to debt—is high, interest expenses are near cycle lows relative to earnings, and the debt maturity profile has been extended to reduce near-term refinancing risk.

But there are reasons for being vigilant. Higher borrowing in an environment of slower earnings growth is boosting corporate leverage, reversing the postcrisis trend of maintaining conservative balance sheets. Other evidence that points to a weakening of corporate credit conditions includes an easing in financing terms (e.g., covenant-light loans are back to prior cycle high levels and payment-in-kind, perpetual, and hybrid bond issuance has also risen), a rising share of issuance proceeds being used to pay special dividends and fund share buybacks (rather than to finance corporate investment), growth in weaker quality and lower-rated credit issuance, and a loosening in bank lending conditions (see Figure 1.51). The strong starting point in corporate balance sheets helps to mitigate the effects of the more recent trend toward weaker underwriting standards. As a result, default rates in the current cycle are expected to be relatively modest (see Figure 1.51). However, a further extension or intensification of these recent developments could set the stage for future credit deterioration, in turn extending and exacerbating the default cycle, particularly if it is accompanied by a rising rate scenario with less benign macro conditions.

Is corporate credit risk appropriately priced?

Fundamental fair value models suggest that the decline in corporate risk is justified, and corporate bond spreads are wider than past long-term averages and levels reached during the two preceding credit cycles (Table 1.3). But valuation metrics based on historical norms may also be misleading due to the unusually low level of risk-free rates and volatility (suppressed in part by ultra-accommodative monetary policy). Indeed, both nominal and real current bond yields are at historically low *levels* and are well below the lows reached in the past two credit cycles.

Other price-based measures also suggest that investors are not getting compensated for additional risk. For instance, yield scaled by corporate

Table 1.3. U.S. Nonfinancial Corporate Bonds: Yields, Spreads, and Valuations
(In percent)

	Yield on IG Corporate Bonds	IG Yield per Unit of Leverage	IG Spread to Treasuries	Yield on HY Corporate Bonds	HY Yield per Unit of Leverage	HY Spread to Treasuries
End-2012	2.7	1.3	1.4	6.1	1.6	5.0
Last two credit cycles[1]	6.1	3.9	0.8	7.9	3.4	2.7
Fair value model (IMF)[2]	. . .	2.9[3]	1.1	. . .	2.5[3]	5.9

Sources: Bloomberg L.P.; Citigroup; Bank of America Merrill Lynch; and IMF staff estimates.

Note: IG = investment-grade; HY = high-yield.

[1]Refers to average levels prevailing in Feburary 2007 and April 1998.

[2]The investment-grade corporate credit model is based on the difference between the yield-to-worst on nonfinancial corporate bonds and the comparable yield on U.S. Treasuries. Determinants include proxies for underlying credit fundamentals, systemic stress, and wealth effects. The high-yield model is based on option-adjusted spreads and includes default rates and a measure for liquidity and volatility as determinants.

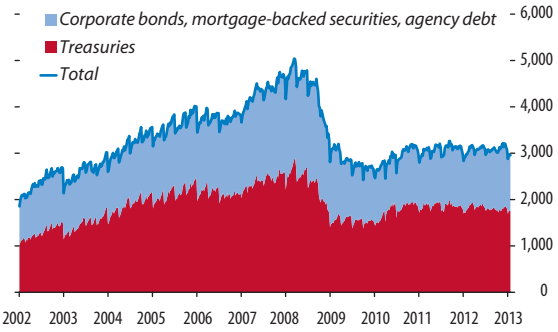
[3]Represents long-term average.

leverage is at its lowest level in recent history for both investment-grade and high-yield issuers.[33] (A low yield-to-leverage ratio is analogous to a high price-earnings ratio in equity markets.) Similarly, the weakening in covenants has not been accompanied by higher yields, suggesting either reduced compensation for risk or other offsetting nonprice features (e.g., stronger capital structure, better credit fundamentals). In short, while not uniform, some metrics appear to show increasingly indiscriminate credit pricing as underwriting conditions have weakened.

The search for yield may eventually increase the demand for financial leverage and push risks to the nonbank sector.

The low-yield environment may also encourage the use of financial leverage—borrowing against assets that are generating current income—to enhance yield. Leverage can be provided either directly through financial intermediaries, such as via financing of repos (repurchase agreements), or indirectly through embedded leverage in financial instruments. Over-exuberant financial engineering and the use of embedded leverage was an important trigger for the global financial crisis of 2007–09. Financial leverage has been less prominent in the search for yield at least at this stage. One reason is that tighter regulations increase the constraints on the balance sheets of banks and broker-dealers, thus making them less willing to provide loans (Figure 1.52). Another reason is the residual effects of the massive underperformance of mortgage structured products during the financial crisis.

Figure 1.52. U.S. Primary Dealer Repo Financing
(In billions of U.S. dollars)



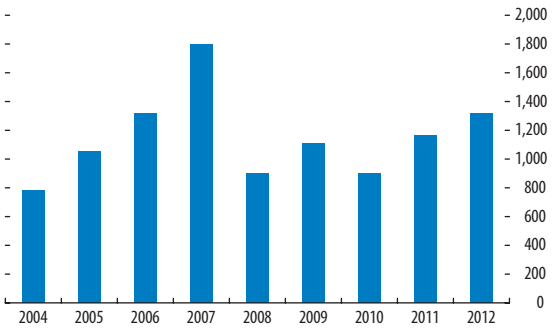
Sources: Federal Reserve; Haver Analytics; and IMF staff estimates.

Nonetheless, the potential shift in the way that leverage is provided deserves more attentive monitoring. In their search for higher returns, investors have selectively returned to certain types of structural leverage, via leveraged loans, collateralized loan obligations, and structured notes, which fared well during the crisis (Figure 1.53).[34] Mortgage real estate investment trusts (REITs) have also emerged as an important alternative intermedi-

[33]*Leverage* is defined as the ratio of median gross debt to EBITDA (earnings before interest, taxes, depreciation, and amortization).

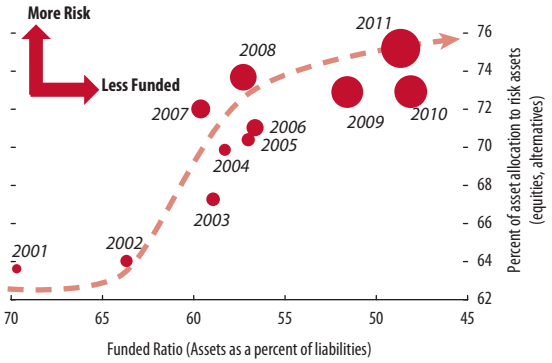
[34]Leveraged loans are taken out by highly indebted companies that are either unrated or rated no higher than BB+ and that may have difficulty directly tapping the high-yield corporate bond market.

Figure 1.53. Global Issuance of Leveraged Loans and Collateralized Debt Obligations
(In billions of U.S. dollars)



Sources: Bloomberg L.P.; Credit Suisse; Dealogic; and IMF staff estimates.

Figure 1.54. Risk Tolerance for Weakest 10 Percent of U.S. Public Pension Funds



Sources: Boston College Center for Retirement Research; and IMF staff estimates.
Note: Size of bubble represents allocation to alternative investments; 2011 is 25.5 percent.

ary in the secondary mortgage market.[35] A further potential concern is the opportunistic provision of leverage by nonbank intermediaries operating outside of the regulatory perimeter as they seek to fill the void left entities that are more balance sheet-constrained.[36]

Gamble for resurrection: pension funds and insurers could add to vulnerabilities.

Slow-moving risks are also emerging for some types of asset managers amid an extended period of low interest rates. This is apparent for U.S. public defined-benefit pension plans, which have suffered from weak asset returns. Funding of those programs has deteriorated substantially in the past decade, from being fully funded in 2001 to an estimated shortfall of 28 percent as of end-2012.[37] Risks are slow to build, as the issue for pension plans is *solvency* rather than liquidity (in contrast to most banking crises).[38]

U.S. public pension funds—particularly the lowest-funded ones— have responded to the low–interest-rate environment by increasing their risk exposures (Figure 1.54). At the weakest funds, asset allocations to alternative investments grew substantially to about 25 percent of assets in 2011 from virtually zero in 2001, translating into a larger asset-liability mismatch and exposing them to greater volatility and liquidity risks.[39]

Life insurance companies face a similar dilemma, as low interest rates create asset-liability mismatches and diminish net interest margins. Low interest rates mean that insurers face the prospects of investing in lower-yielding assets as bonds mature. On the liability side, long-term fixed-rate legacy products are costly because minimum guarantee rates cannot be easily reduced. The effect is a compression in net interest margins, that is, a reduction in the difference between returns on underlying investments and rates that insurance companies pay to policyholders. To counter the effects of lower rates, life insurers have engaged in liability management operations.[40] But because the limits to

[35]Residential mortgage REITs get short-term funding in the repo market to purchase mortgage-backed securities in the secondary market. Leverage is usually around 10 times.

[36]For instance, nonbank financial intermediaries with large amounts of high-quality assets may seek to engage in liquidity or maturity transformation (e.g., though securities lending or repos).

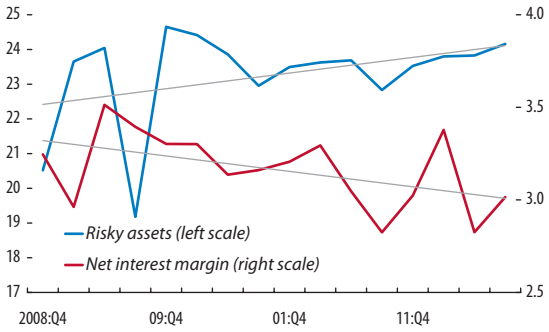
[37]The 28 percent figure uses state and local planning assumptions, which are virtually unchanged over the period. This rise is driven by poor asset performance relative to defined obligations.

[38]For the 10 percent of the U.S. individual public pension plans that are the least-funded, annual benefit payments are less than 10 percent of pension market assets, suggesting it will be many years before a crisis or insolvency event.

[39]Alternative investments cover a broad range of investment strategies and structures that fall outside the boundaries of traditional asset categories of equities, bonds, and cash, and include, for instance, private equity, hedge funds, and financial derivatives.

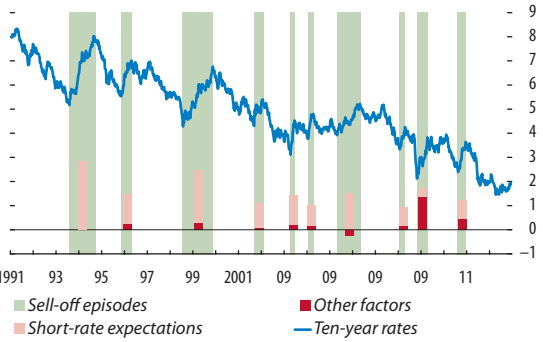
[40]For instance, they have lowered rates on legacy products where possible, curtailed interest-sensitive products, sought to

Figure 1.55. Net Interest Margins and Investment in Risky Assets by U.S. Insurance Companies
(In percent)



Sources: Company reports; SNL Financial; and IMF staff estimates.
Note: Risky assets are defined as lower-rated corporates, alternative assets, equities, and commercial real estate loans as a share of total investments.

Figure 1.56. U.S. Treasury Sell-Off Episodes
(In percent)



Sources: Bloomberg L.P.; and IMF staff estimates.

most of these measures have already been reached, insurance companies have migrated into higher-risk, less-liquid assets (Figure 1.55).

Capital shortfalls do not appear to be an immediate risk, as the industry has built excess liquidity and capital buffers since the crisis. But a protracted period of low rates could depress interest margins further and erode capital buffers, potentially driving insurance companies to further increase their credit and liquidity risk. At the same time, life insurers operate with significant balance sheet leverage and are thus exposed to credit shocks.

The "gamble for resurrection" in response to solvency risk, asset-liability mismatches, or diminishing net margins applies more broadly to insurance companies and pension funds operating in a low interest rate environment. A re-risking via changes in business models or asset allocation needs to be closely monitored.

A shock to the risk-free rate could potentially expose vulnerabilities and destabilize credit markets.

A sharp, unanticipated rise in risk-free rates could expose vulnerabilities that are currently masked by low interest rates and ample liquidity. Despite the reduction in tail risks and improvement in economic data, markets are currently not pricing in any meaningful rise in interest rates.

We evaluate a potential U.S. Treasury bond market correction based on an expectations-hypothesis model, where long-term interest rates are estimated as a function of expected short-term interest rates over a two-year forward-looking horizon. We isolate past episodes of U.S. Treasury bond corrections back to the mid-1980s.[41] Not surprisingly, a rise in expected short-rates is the dominant factor that explains past bond sell-offs (Figure 1.56). More recently, however, there has been a substantial compression of the term premium that has contributed to a larger portion of the decline in bond yields, in concert with the stronger commitment to a longer period of low policy rates.

What would a bond correction look like now? We consider two illustrative scenarios: one based on the historical sensitivity of long-term yields to a change in expected short rates and the average term premium of past bond corrections; and a second based on a higher beta and lower term premium consistent with the more recent period (Table 1.4).[42]

In the first scenario, a 1.5 percentage point rise in expected short rates, consistent with past bond corrections, drives bond yields to 3.4 percent from the current 2.0 percent. The second scenario illustrates that the bond market could also be more vulnerable

renegotiate terms, and sold blocks of business to private equity funds.

[41]A *correction* is defined as a rise in 10-year Treasury yields of more than 1.6 standard deviations over a three-month window.

[42]See the April 2013 *World Economic Outlook*, Chapter 1.

Table 1.4. Scenarios for U.S. Treasury Bond Market Corrections

	Level of Expected Short Rates (percent)	Rise in Short Rates from Current Level (percent)	Beta to Short Rates	Term Premium (percent)	10-Year Yield (percent)
Based on historical bond market corrections	0.5	1.5*	0.9	1.6	3.4
Past bond corrections with latest parameters	0.5	1.0	2.9	0.5	4.8

Source: IMF staff estimates.

Note: 10-year yields = beta x expected short rate + term premium. In the first scenario, the 10-year yield (3.4 percent) is the beta (0.9) multiplied by expected short rates (0.5 percent + 1.5 percent) plus the term premium (1.6 percent). The expected short rate is an average of quarterly three-month interest-rate futures two years ahead. The beta to short rates and the term premium is the average estimate of a rolling 3-month regression during past bond market corrections. The current beta and term premium are estimates at end-January.

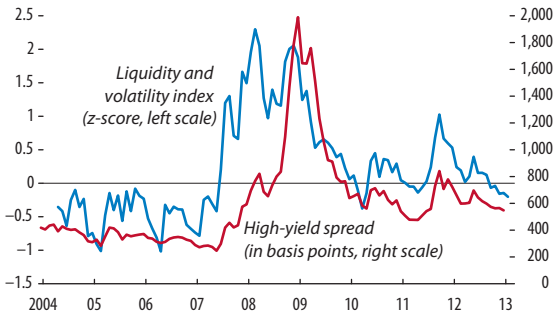
*The average increase in expected short rates in past bond market corrections is 1.5 percent. We apply the change to the current level of short rates, which is well below historical norms. These scenarios capture only the initial phase of a bond market correction.

than the norm. The sensitivity of bond yields to short rates has increased substantially. Even a modest 1.0 percentage point rise in expected short rates can generate a more material increase in yields, to 4.8 percent.[43] A rise in the term premium to historical norms—as a result of sovereign risk or other factors—is an additional source of potential pressure (1.1 percentage points in this example).

Drawing from historical experience is challenging, given the unique features of the current cycle. Also, context is important—a benign trigger such as a more rapid economic recovery that results in a faster-than-expected rise in interest rates would likely have less destabilizing effects, and policy officials would aim to manage a more gradual rise. Systemic stability risks would likely be greater if, instead, interest rates remain low for a more protracted period. This would allow for a further decay in credit conditions and increasing vulnerability to a faster-than-expected rise in yields, coupled with rising sovereign risk premiums or weaker potential growth (see the scenarios in the April 2013 *World Economic Outlook*). Where historical experience does provide guidance is on the speed of the rise in bond yields being a key consideration for stability risks. A faster increase would have important direct and indirect consequences, including, for instance, greater risk of a sudden stop or reversal of capital flows to emerging market economies; destabilizing losses in large, leveraged nonbank credit channels sensitive to interest rate risk, such as mortgage REITs; and asset-liability mismatches in the banking system and elsewhere.

[43]In their baseline scenario, Carpenter and others (2013) contemplate a rise in 10-year yields of roughly 300 basis points over a three-year period.

Figure 1.57. U.S. High-Yield Corporate Spread and Liquidity and Volatility



Sources: Bank of America Merrill Lynch; Bloomberg L.P.; Citigroup; and IMF staff estimates.

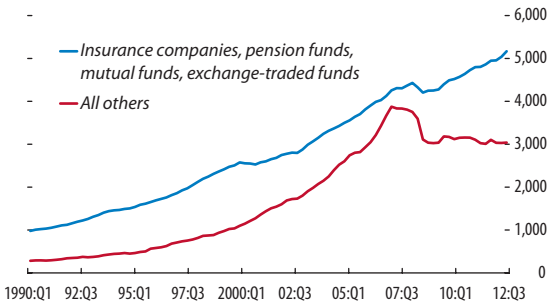
Note: Liquidity and volatility index is based on swaption volatility, swap spreads, and equity-implied volatility.

Credit risk can be amplified by poor liquidity.

Furthermore, the decline in U.S. corporate bond market liquidity could amplify the vulnerabilities in credit markets in the event of a sharp rise in government bond yields.[44] Illiquidity is currently being masked by low rates, strong asset performance, and the one-way nature of inflows to corporate bond markets. The effects of the decline in liquidity could become evident once those dynamics reverse, potentially raising volatility, increasing funding costs for issuers, straining other credit channels, and discouraging longer-term investment plans. This is especially relevant for the high-yield sector, where liquidity and volatility are important determinants of spreads (Figure 1.57).

[44]See the October 2012 GFSR (Chapter 2, Box 2.6) for details on depressed corporate bond trading liquidity.

Figure 1.58. Holdings of U.S. Corporate Bonds, by Investor Type
(In billions of U.S. dollars)



Sources: Federal Reserve; and IMF staff estimates.
Note: Household holdings were excluded to reduce the incidence of double-counting.

It is also relevant for asset managers who have increased their corporate bond exposure significantly since 2008 (Figure 1.58). Increased exposure does not in itself pose a stability risk. On the contrary, increased holdings of corporate bonds by traditionally long-term investors with greater capacity to absorb liquidity risk (owing to less liquid liabilities) may enhance stability. But in an environment of rising rates and with greater volatility, rising balance sheet leverage combined with large recent purchases at very low yields and growing margin pressures could prove to be a toxic mix. The result could be forced asset sales (or unforced sales due to valuation losses) that further compound margin pressures and erode capital buffers.

Against this backdrop, policymakers need to monitor developments closely and stand ready to counter excesses early on.

Tension is building between the ongoing need for extraordinary monetary policy accommodation and credit markets that are maturing more quickly than in typical cycles. High unemployment and low inflation may justify an accommodative monetary policy stance. But other tools need to be employed to counteract undesirable excesses in credit. Increased surveillance and macroprudential tools, such as countercyclical buffers to lean against rising leverage, are essential to manage undesired credit expansion.

The most immediate risk for nonbank financial intermediaries is complacency toward the slow-moving nature of liability loss recognition. Pension funds need to engage in active liability management operations without delay, which can most likely be achieved by restructuring benefits, extending working years, and gradually increasing contributions to close funding gaps. Insurance companies need to proceed with the disposal of legacy products to reduce margin pressure and limit duration mismatches on new products.

An undesired buildup of excesses in broader asset markets is a potential risk over the medium term. Asset reallocations of institutional investors to alternative asset managers, excess cash holdings by those asset managers, the decline in underwriting standards, and the sharp rise in bond valuations are all intertwined. Constraining those potential excesses is a financial stability imperative.

Emerging Market Economies: A Low-Rate Bonanza or Future Woes?

The potential for capital inflows to persist or accelerate, partly driven by low interest rates and higher risk appetite in advanced economies, raises the possibility of too much money chasing too few emerging market assets. At present, balance sheets within emerging market economies appear generally sound, but a continuation of current trends would likely lead to an increase in financial stability risk. Emerging market assets could also prove vulnerable to changes in the external environment, notably an eventual rise in global rates amid heightened uncertainty. A further concern is that favorable current market conditions may lead to complacency in managing growing domestic financial stability challenges.

Emerging market economies have benefited from capital inflows, but could low rates and low volatility result in too much of a good thing?

Emerging market economies reap substantial benefits from capital inflows, which in general allow them to increase productive investment, extend financing terms, and reduce interest rate costs. But too rapid or imbalanced inflows often bring vulner-

abilities that can include accumulations of foreign liabilities and potentially rapid increases in domestic credit and asset prices.[45]

With interest rates remaining low, institutional fixed-income investors, such as insurance companies and pension funds, are increasing exposures to higher-risk investments, supporting demand for emerging market sovereign and corporate bonds, and pushing up inflows.[46]Amid this search for yield, capital inflows may have become more sensitive to interest rate differentials (adjusted for volatility) between developed and emerging market economies (Figure 1.59).

Has the supply of emerging market assets risen to match the increase in demand? Although issuance of bonds has increased sharply over the past four years, this has, in part, substituted for the decline in syndicated loans, as European banks came under deleveraging pressure. Overall, the net new supply of assets from emerging markets to international markets was lower in 2012 than two years earlier (Figure 1.60). One important consequence of this relatively slow supply growth has been the growing share of foreign investors in key emerging market asset classes, such as sovereign bonds (Figure 1.61).

What emerging market vulnerabilities could arise as a consequence? While emerging market economies benefit from favorable external financing conditions, including through reduced borrowing costs and a wider range of financing sources, excess borrowing could increase risks over the medium term. Higher corporate leverage may raise susceptibility to an adverse growth or interest rate shock, while a rise in foreign currency borrowing could increase exposure to currency or foreign financing shocks. At the same time, the crowding-in of foreign investors could lead to an asset price bubble, with prices becoming increasingly sensitive to external conditions. Inflows and low foreign interest rates may thus compound a buildup in domestic vulnerabilities, including in credit markets. Moreover, the favorable external environment might breed complacency among policymakers facing domestic financial stability challenges. Each of these possibilities is examined in turn.

How much have emerging market corporate debt fundamentals deteriorated?

A combination of higher bond financing with relative stagnation in equity issuance (Figure 1.62) has increased debt-equity ratios and thus corporate leverage in emerging market economies. Countries that have experienced the largest increases in debt-to-equity ratios since 2007 (Turkey, the Philippines, China, Brazil, Thailand, Chile) are, in general, those that started with the highest ratios, although Korea, Mexico, and Indonesia moved in the opposite direction (Figure 1.63).

In some countries in emerging Asia, the increase in corporate debt-to-equity ratios appears related to strong domestic growth and low real interest rates, with much new debt contracted to finance infrastructure investments. There is some concern that floating-rate or short-maturity loans could represent a vulnerability when policy rates start to rise. Foreign exchange corporate borrowing generally plays a lesser role in emerging Asia (Figure 1.64), but the rise in corporate debt-to-equity ratios in Brazil appears closely related to higher issuance of foreign-currency-denominated bonds. Nevertheless, Brazilian firms appear to have a lower degree of overall foreign-currency exposure (including exposure through derivatives) than they did at the time of the Lehman crisis in 2008. Turkish firms, in turn, have increased leverage considerably over the last four years as borrowing from the local banking system rose from 16 percent to 28 percent of GDP. While this borrowing is collateralized and is done by firms with strong balance sheets, the rapid increase and resulting leverage warrant careful monitoring.

Overall, there has been some increase in foreign-currency funding. During the past five years, total foreign-currency borrowing by emerging market businesses increased by about 50 percent.[47] In many markets the share of corporate foreign-currency debt

[45]After an acceleration of portfolio flows into dedicated emerging market funds around the start of the year, flows have moderated in recent weeks.

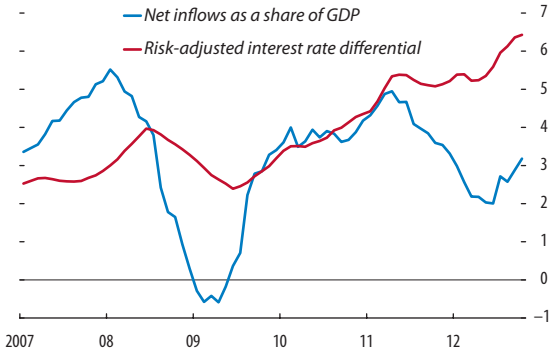
[46]Even moderate changes in portfolio allocations by institutional investors can be significant. A 2 percent increase in the portfolio share allocated to foreign assets by U.S. pension funds, from 13 to 15 percent, would result in an additional $230 billion in outflows, or about one-half of total net capital inflows to emerging market economies in 2012 (of course, not all of the additional outflow would go to emerging market economies).

[47]Cross-border loans plus foreign-currency-denominated bonds.

Flows to emerging market economies have risen with risk-adjusted interest rate differentials . . .

Figure 1.59. Net Capital Flows to Emerging Market Economies

(In percent, 12-month rolling sums)

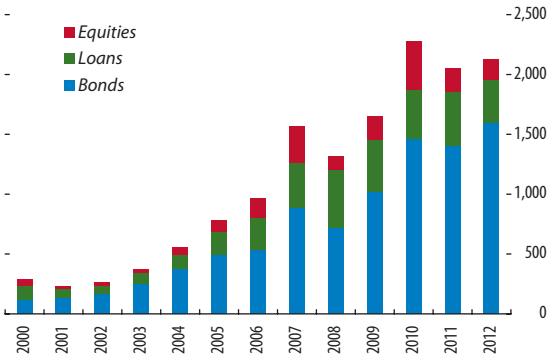


Sources: Bloomberg L.P.; CEIC; and IMF staff estimates.

. . . but the supply of emerging market assets is not keeping up with the new demand . . .

Figure 1.60. Selected Emerging Market Bond, Equity, and Loan Issuance

(In billions of U.S. dollars)

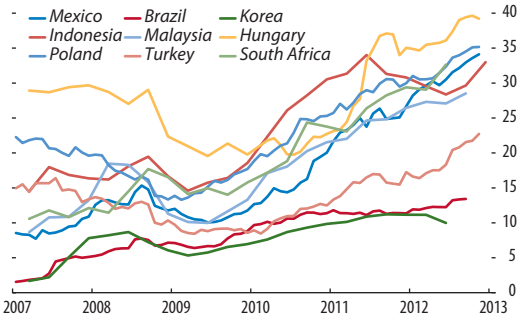


Source: Dealogic.

. . . resulting in higher foreign ownership share in some key markets . . .

Figure 1.61. Nonresident Holdings of Domestic Sovereign Debt

(In percent)

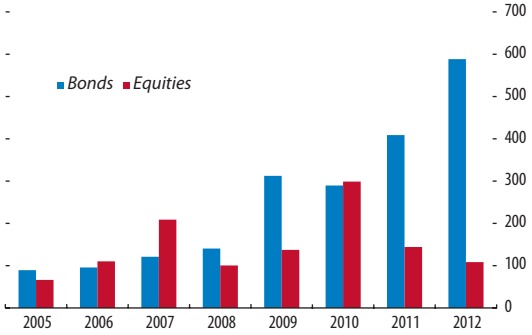


Sources: asianbondsonline.adb.org; national authorities; and IMF staff estimates.

. . . even as corporate issuers step in to fill some of the gap.

Figure 1.62. Emerging Market Nonfinancial Corporate Issuance

(In billions of U.S. dollars)

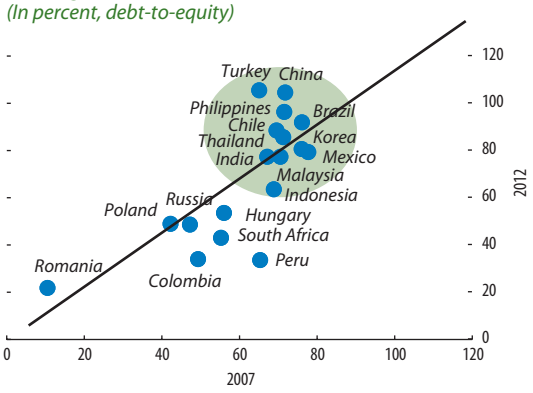


Source: Dealogic.

Corporate leverage has risen for some of the more leveraged countries . . .

Figure 1.63. Emerging Market Nonfinancial Corporate Leverage, 2007 and 2012

(In percent, debt-to-equity)

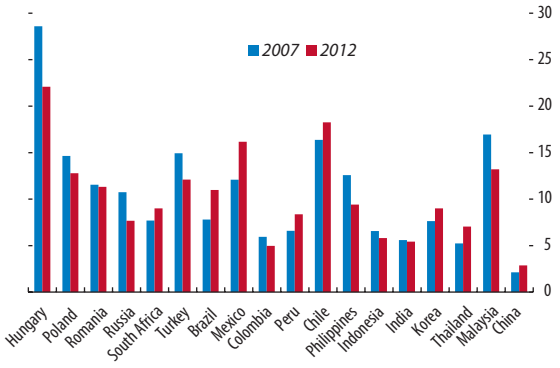


Sources: Bank for International Settlements; CEIC; Dealogic; and IMF staff estimates.

. . . with foreign-exchange-denominated debt also rising in some cases.

Figure 1.64. Foreign-Exchange-Denominated Debt of Nonfinancial Corporations in Emerging Market Economies

(In percent of GDP)

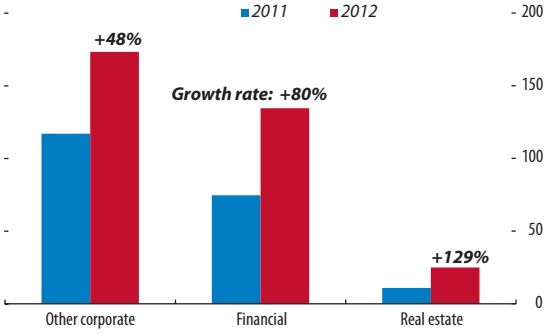


Sources: Dealogic; and IMF staff estimates.

Some riskier sectors are leading the charge . . .

Figure 1.65. Emerging Market Corporate Issuance, by Type of Issuer

(In billions of U.S. dollars)

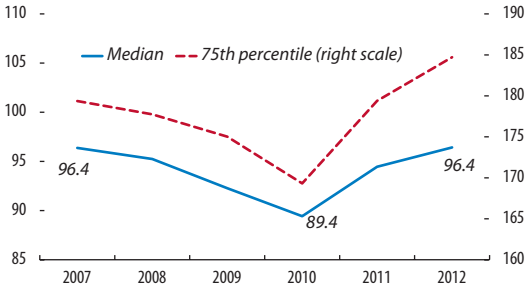


Source: JPMorgan Chase.

. . . with leverage rising for Asia's most leveraged firms.

Figure 1.66. Corporate Leverage in Asia, excluding Japan

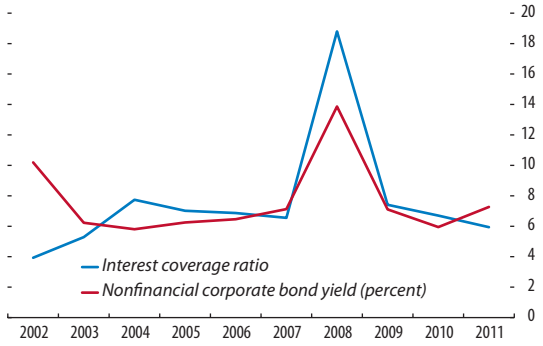
(Ratio of total liabilities to common equity, percent)



Sources: CreditEdge; and IMF staff estimates.

Note: Leverage ratio is computed for a balanced sample of 3,836 nonfinancial companies in China, Hong Kong SAR, India, Indonesia, Korea, Malaysia, the Philippines, Singapore, Taiwan Province of China, Thailand, and Vietnam.

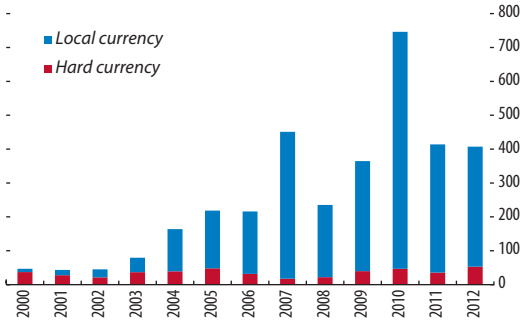
Figure 1.67. Interest Coverage Ratio for Emerging Market Firms



Sources: Bloomberg L.P.; Cap IQ; and IMF staff estimates.

Figure 1.68. Hard Currency and Local Currency Sovereign Bond Issuance

(In billions of U.S. dollars)



Source: Dealogic.

in GDP remained substantial or even rose, amid large increases in dollar-based GDP (see Figure 1.64). This trend has been complemented, in some cases, by a move away from issuing equity, which is essentially a domestic-currency liability, and toward issuing bonds denominated in foreign currency (see Figure 1.62).

On top of the broad-based increases in debt-to-equity ratios and foreign currency debt, some of the more speculative sectors, such as real estate companies, have seen issuance more than double in the past year. Issuance by financials has also risen more sharply than that by nonfinancial firms (Figure 1.65). A more detailed examination of the distribution of firms in Asia—excluding Japan—reveals sharper increases for the most leveraged firms (Figure 1.66).[48] While interest coverage appears healthy on average, firms may be vulnerable to earnings or interest rate shocks (Figure 1.67). At the same time, as discussed in Box 1.1, which looks at the case in China, for many highly leveraged firms, the ratio of earnings to interest expenditures has begun to decline.

At present, corporate debt ratios and foreign-currency liabilities do not appear excessive on a historical basis (see Figure 1.64). But if current trends continue, corporate balance sheets could face increasing strains over time. As an illustration, should debt-equity ratios continue to rise at the same pace over the next two years as they have over the past two, the aggregate ratio for the most leveraged quarter of Asian businesses would climb from 185 to 200 percent, while that for the group of leveraged Latin American businesses would rise from 260 to 300 percent. The figures in each case would exceed recent highs (registered in 2008), but would still be below debt-to-equity ratios for U.S. high-yield issuers, which currently average about 370 percent.[49] Similarly, extending the past year's pace of growth in foreign currency debt over the next two years would bring the ratio of corporate foreign-currency-denominated debt to GDP from 10 to 12 percent for emerging market economies excluding China. At such levels, financial stability risks would rise, and emerging market corporations would become significantly more susceptible to adverse shocks, such as from earnings weakness or sudden interest and exchange rate movement.

Sovereign borrowers can benefit from low rates and widening international market access, but caution is warranted.

Low global rates, low volatility, and rising risk appetite have provided increased market access for a wider range of sovereign borrowers, which is certainly welcome (Figure 1.68). Foreign purchases of portfolio assets (mainly sovereign bonds and equities) in several "frontier" markets, including African markets such as Ghana, Nigeria, and Zimbabwe,

[48]See Box 1.4 of the April 2011 GFSR.

[49]These debt-to-equity ratios are calculated by IMF staff using historical data provided by Bank of America Merrill Lynch.

Box 1.1. What Has China's Lending Boom Done to Corporate Leverage?

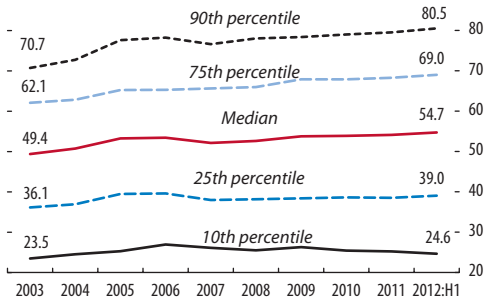
Real bank lending in China has grown at double digits over the past several years, pushing the stock of loans to 130 percent of GDP by end-2012. A broader measure of credit—including trust loans, corporate bonds, and a few other sources of debt finance—has even climbed as high as 172 percent of GDP. Although much recent new lending has gone to local government entities, the corporate sector remains the largest borrower.

Leverage of the typical listed company has risen but still appears relatively contained. Based on firm-level data, the median company had financial liabilities not exceeding 55 percent of total assets at end-June 2012, up 5 percentage points since 2003 (Figure 1.1.1). Data for a somewhat broader, but shorter, panel of firms paint a similar picture. Despite strong credit growth, many companies have managed to contain their gearing, thanks in part to years of strong profits and modest payout ratios.

Averages, however, do not tell the whole story. Some companies have geared up considerably, with the ratio of debt to total assets above 80 percent for the top decile of firms, representing an increase of 10 percentage points since 2003. The industrials, materials, utilities, and real estate sectors have had the fastest increase in leverage (Figure 1.1.2), notably on the part of large companies, which tend to enjoy easier access to credit.

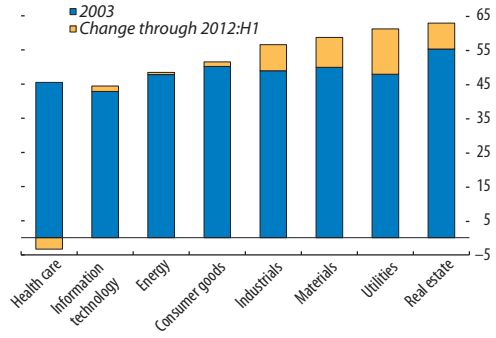
Note: Prepared by André Meier and Changchun Hua.

Figure 1.1.1. Ratio of Debt to Total Assets in Listed Chinese Companies, 2003–12
(In percent)



Sources: WIND; and IMF staff estimates.
Note: Computed for a balanced panel of 1,348 nonfinancial companies with data availability for the entire sample period.

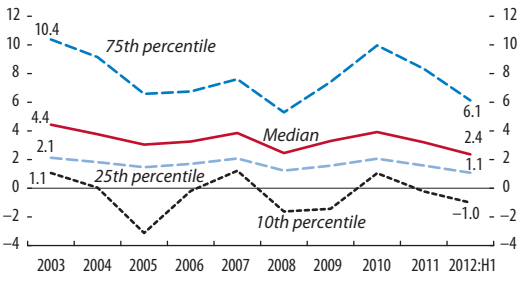
Figure 1.1.2. Median Ratio of Debt to Total Assets, by Sector
(In percent)



Sources: WIND; and IMF staff calculations.
Note: Computed for a balanced panel of 1,348 nonfinancial companies with data availability for the entire sample period.

Moreover, corporate profits have failed to keep pace with the rise in interest burdens. For a balanced panel of some 900 listed companies, the median ratio of earnings to interest expenditure fell to 2.4 by mid-2012, down from 4.4 nine years earlier (Figure 1.1.3). This decline reflects not only the rise in debt burdens but also the recent weakening in corporate profits. To the extent that this weakening was cyclical, a recovery should be expected. However, some sectors are likely to face persistently less favorable business conditions, as they grapple with excess capacity or rising input costs. Consequently, financial strains could become more apparent over time.

Figure 1.1.3. Ratio of EBIT to Interest Expenditure in Listed Chinese Companies, 2003–12



Sources: WIND; and IMF staff calculations.
Note: EBIT= earnings before interest and taxes. Computed for a balanced panel of 917 nonfinancial companies with data availability for the entire sample period.

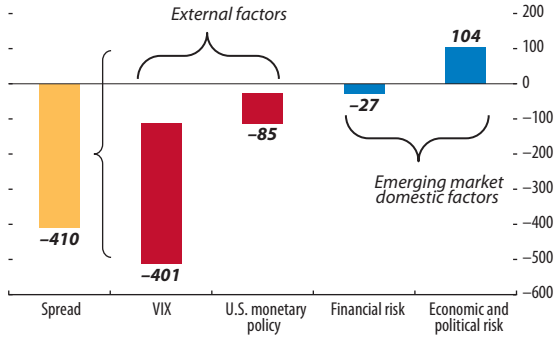
surged in 2012, in some cases reaching new highs.[50] Nonetheless, the rise in dollar borrowing, including from a growing number of lower-rated issuers, suggests that developing economies need to remain mindful of their dollar exposures. A related danger is that indiscriminate demand from foreign investors could lead to policy complacency, postponing needed adjustments of large (and growing) external imbalances (e.g., Ukraine and Hungary).

External shocks could prompt a substantial increase in emerging market financing rates.

Emerging market sovereign and corporate issuers have benefited greatly from favorable external conditions over the past four years, with spreads for foreign-currency-denominated debt narrowing by an average of 400 basis points since end-2008. Our bond pricing model indicates that stimulative U.S. monetary policy and lower global risk (itself partly attributable to the actions of advanced economy central banks) together account for virtually all of the spread reduction in the emerging market bond index (Figure 1.69).[51] The benefits arising from the external environment have extended to domestic markets, as shown by a second pricing model (Figure 1.70) that gauges the determinants of local currency bond yield. While domestic conditions—including the policy rate—are shown in this model to play a major role, foreign inflows are identified as the single largest factor behind the large decline in local currency yields.

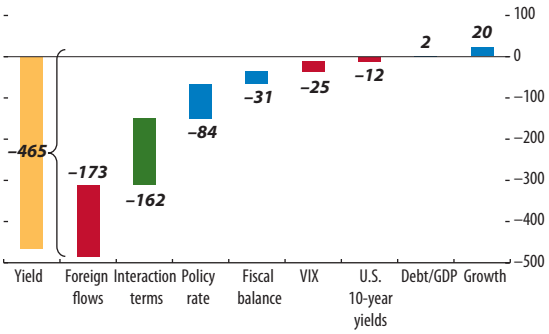
But what would happen if external conditions were to deteriorate? Foreign currency bond spreads are especially vulnerable to tightening in external conditions, to the extent that a combined 300 basis points effective tightening in U.S. monetary policy and 3 standard deviation rise in volatility (VIX) would wipe out the spread tightening gains of the last four years (Figure 1.71). (However, a scenario of strong global growth together with rising rates and a normalization of volatility would have a more subdued effect, as improving domestic conditions would offset some of the tightening in external conditions.) Even for local currency debt, reflecting the expanded role of foreign investors, a net sale by foreigners of 20 percent of their bond holdings would push up yields by almost 100 basis points on average, all else held constant (Figure 1.72). Many emerging market economies, it appears, still face external constraints on their ability to borrow, particularly during bouts of reduced global risk appetite.

Figure 1.69. EMBI Global Spread Tightening (December 2008–12): Decomposition
(In basis points)



Source: IMF staff estimates.

Figure 1.70. Local Yield Tightening in Emerging Market Economies (December 2008–12): Decomposition
(In basis points)

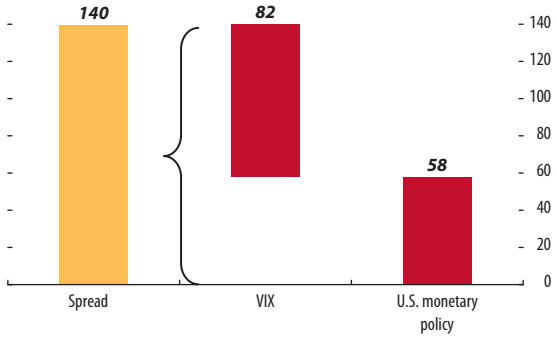


Source: IMF staff estimates.
Note: The interaction terms arise from the non-orthogonality of the explanatory variables (due to collinearity).

[50]In 2012, hard currency issuance rose by 37 percent while low rates led to issuance by high-yield and debut issuers: Bolivia (4.9 yield at issue), Paraguay (4.6 percent in January 2013), Romania (6.5 percent), Ukraine (7.8 percent), Serbia (6.6 percent in September 2012 and 5.5 percent in November 2012), and Zambia (5.6 percent).

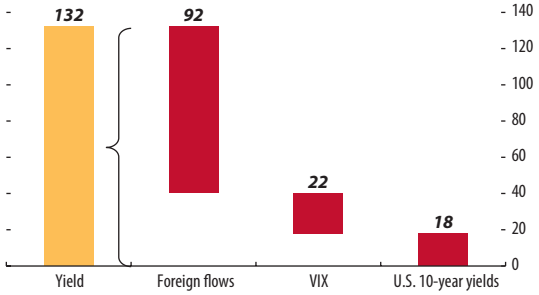
[51]The striking result that domestic conditions appear to have had little impact on spread tightening largely reflects the strong policy position of many emerging market economies before the crisis.

Figure 1.71. Impact of Shocks on EMBI Global Spreads
(In basis points)



Source: IMF staff estimates.
Note: Shocks are a one standard deviation increase in the VIX, a 100 basis point rise in the federal funds rate, and a 25 basis point increase in the volatility of the federal funds rate.

Figure 1.72. Impact of Shocks on Local Emerging Market Yields
(In basis points)



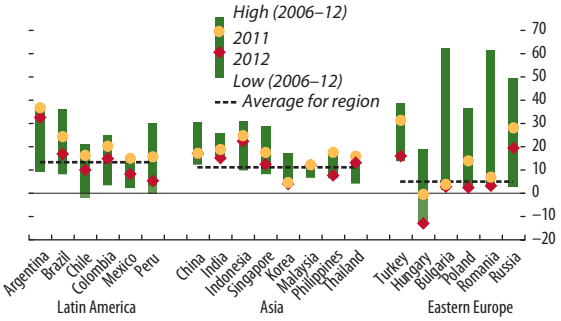
Source: IMF staff estimates.
Note: Shocks are a five percentage point increase in the VIX, a 50 basis point rise in U.S. 10-year yields, and a 20 percent reduction in foreigners' holdings of local debt (as a share of outstanding debt).

Domestic financial stability challenges are rising, partly spurred by external conditions . . .

Several countries face stability risks from continued strong credit growth, asset price appreciation, weaker bank balance sheets, and deteriorating asset quality. Supportive monetary policy and strong private demand have bolstered domestic credit in emerging market economies, pushing credit-to-GDP ratios to record highs in a number of countries in emerging Asia and Latin America. On average, bank credit expanded by 13 percent and 11 percent in Latin America and Asia, respectively, over the past year, more than twice as fast as in Eastern Europe (Figure 1.73).[52] Capital inflows have played a role in this trend. Faced with appreciation pressures from inflows, authorities in some countries have opted to keep monetary conditions looser than they otherwise would have, for fear of becoming major carry trade destinations. While the overall credit-to-GDP ratio for emerging market economies, at about 70 percent on average, remains well below the 145 percent average for advanced economies, rapid growth in this ratio has often proved to be as destabilizing as having a high ratio overall.[53]

Household borrowing accounts for much of the overall increase in credit in Latin America, where many consumers have only recently gained access to credit markets (Table 1.5). However most of the total stock of credit to households in this region is not

Figure 1.73. Domestic Credit Growth, 2006–12
(In percent)



Source: IMF, International Financial Statistics database.

in mortgages but in nonmortgage consumer lending, typically for large durable goods such as cars. In emerging Europe, mortgage lending accounts for a much larger share of total credit, but there has been an across-the-board slowdown in all types of lending in the region. Credit growth in Asia has focused on corporate lending, consistent with the increase in corporate debt-equity ratios in the region, but there are still pockets of rapid growth in consumer lending.

Asset prices have moved up with the steady growth in credit, although no region is showing clear evidence of bubbles. Reflecting the growth in credit to households, house prices have continued to rise in Brazil, Hong Kong SAR, and Malaysia, even after adjusting for CPI inflation (Figure 1.74).[54] In

[52]Excluding Russia and Turkey.
[53]See Annex 1.1 of the September 2011 GFSR.
[54]The property price index in Brazil is limited to prime locations.

Table 1.5. Distribution of Bank Lending and Nonperforming Loans

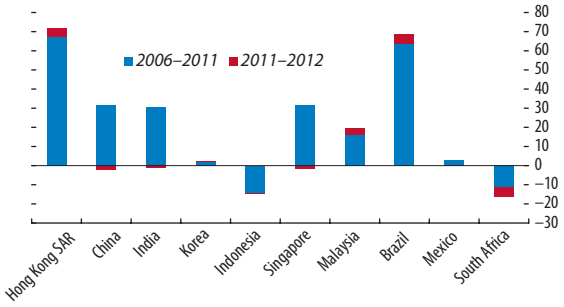
Region	Share of Total Loans (in percent)			Share of Gross NPLs (in percent)		Sectoral Gross NPL Ratio (in percent)	
	Household	of which: Mortgages	Corporate	Household	Corporate	Household	Corporate
Asia	27.5	17.7	48.9	21.9	57.1	1.4	1.7
Latin America	34.4	12.9	53.1	47.3	45.9	5.4	3.5
Eastern Europe	46.4	27.7	50.0	36.5	47.7	6.6	8.3

Sources: Annual reports; Bloomberg L.P.: and IMF staff estimates.

Note: NPL = nonperforming loan.

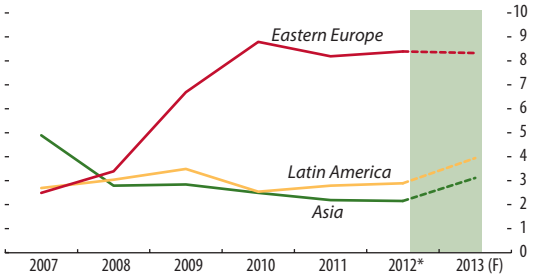
[1]The figures are average values computed from the largest banks in each of the sample countries within the regions. Sample countries include Brazil, Chile, China, Hong Kong SAR, Hungary, India, Korea, Poland, Russia, Singapore, and Thailand. "Household" comprises mortgages and other consumer credits. Sectoral gross NPL ratio is computed as gross nonperforming lending to sector *x*/total lending to sector *x*.

Figure 1.74. Consumer Price Index-Adjusted Residential Property Prices, 2006–12
(Percent change)



Source: IMF, Corporate Vulnerability Utility database.

Figure 1.75. Gross Nonperforming Loan Ratios, 2010–12
(In percent)



Sources: Bankscope; Bloomberg L.P.; IMF, Financial Soundness Indicators, International Financial Statistics, and World Economic Outlook databases.

Note: Based on median forecast results from panel vector autoregression in a baseline scenario.

response to these developments, Hong Kong SAR, Malaysia, and Singapore have introduced fresh measures to curtail market exuberance and further reinforce financial buffers. In Korea, with the encouragement of the authorities, banks have scaled back some credit operations, responding to above-trend house price growth with a small decrease in overall mortgage loans outstanding.

As typically occurs after a sustained period of strong credit growth, some asset quality deterioration has begun to appear, even as nonperforming loan rates remain low on a historical basis. Some major emerging market economies, including Brazil, India, and Mexico, have seen upturns in delinquency rates for certain types of loans. [55] While many countries have been active in adopting more stringent impaired loan recognition standards, there are concerns about asset restructuring practices and lax definition of distressed assets in some cases (Figure 1.75). The resulting risk of underestimating true asset quality problems appears particularly relevant in China and India.[56]

Despite the balance sheet expansion and moderate upturn in nonperforming loan rates, bank capital levels remain generally adequate. However, in every region (but especially in eastern Europe) there is a substantial subset of banks that may not be prepared to absorb

[55]Based on the recent Financial System Stability Assessment (FSSA) for Brazil, some segments of the household sector may already be under stress. Similarly for India, FSSA findings suggest that rapid credit growth and a slower economy will likely put pressure on banks' asset quality.

[56]In China, concerns remain focused on exposures toward local government financing vehicles, but this must be weighed against the over-provisioning (some 300 percent) of recognized NPLs. In India, slowing growth and project delays have led to an increase in restructured assets, amounting to about 6 percent of total loans. In the 2008 cycle, 15 to 20 percent of similar loans turned nonperforming. Nonetheless, recent annual trends show that on average, 8.5 percent restructured loans slipped into the nonperforming category.

Table 1.6. Credit and Asset Market Indicators for Selected Emerging Markets and Other Countries

2012	Net Portfolio Investment	Credit Growth	Asset Prices (Equities and Housing)	Banking Sector	Corporate Sector
Asia					
China		△			
Hong Kong SAR	△	▽			
India	▽				
Indonesia	▽				△
Korea	▽	▽		△	▽
Malaysia	▽			▽	▽
Philippines	△	▽			
Singapore		▽		▽	▽
Thailand	▽		▽		△
Latin America					
Brazil	△	▽			
Mexico	▽	▽			▽
Chile	△	△	. . .		△
Colombia	△	△	△		▽
Eastern Europe and Others					
Bulgaria	△				△
Hungary	△				
Poland	▽	▽	▽		△
Russia	△	△		△	
South Africa	▽	△		▽	
Turkey		▽		▽	▽

First Quartile
Between First and Second Quartile
Between Second and Third Quartile
Above Third Quartile

△ Increase from 2011
▽ Decrease from 2011
*Otherwise, no changes relative to 2011

Sources: Bankscope; Bloomberg L.P.; IMF, Financial Soundness Indicators, Corporate Vulnerability Utility, International Financial Statistics database; JPMorgan Chase; and IMF staff estimates.

Note: The estimates are based on adjusted z-scores of the indicators in 2012 relative to their past 12 years since 2001, represented in four distinct 25th percentiles. Net portfolio investment is measured in percent of GDP. Credit growth refers to the annual growth in banking sector credit/GDP. Asset prices are computed based on real house price index and equity market price-to-book-value ratio; the banking sector indicator is derived from banks' gross NPL ratios and returns on assets; and the corporate health indicator comprises corporate debt-to-equity ratio and returns on equity.

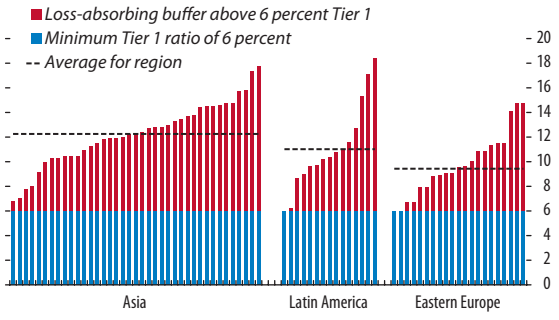
losses from negative shocks (Figure 1.76). Even Asia's relatively high capital ratios could come under strain if growth disappoints, or, alternatively, if additional capital is required to fund rapid balance sheet expansion.

The heatmap (Table 1.6) summarizes the latest trends, highlighting overall credit growth in Asia, and, to a lesser extent, Latin America, the general increase in asset prices, and, in the case of several markets, the increase in debt on corporate balance sheets.

Shadow banking systems may pose additional challenges over the medium term.

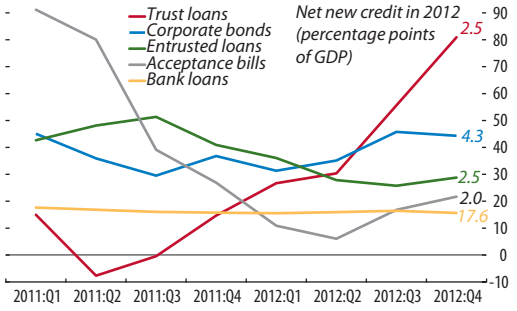
Looking beyond the data available on the formal financial system, informal evidence across a number of emerging market economies points to rising risks from

Figure 1.76. Banks' Loss-Absorbing Buffers by Region
(In percent of risk-weighted assets)



Sources: Bankscope; Bloomberg L.P.; and IMF staff estimates.
Note: Loss-absorbing buffers defined as excess loan loss provisions over impaired loans plus Tier 1 capital above Basel III regulatory requirements.

Figure 1.77. China: Growth Rate of Credit, by Type
(In percent, year-over-year)



Sources: CEIC; Haver Analytics; and IMF staff estimates.
Note: Official data on entrusted loans (i.e., intercorporate loans brokered by banks), trust loans (i.e., loans extended by trust companies), and undiscounted acceptance bills cover only flows, i.e., net new credit. Stocks are computed by cumulating historical flows from 2002 onwards, using end-2001 = 0 as a starting point.

credit supplied outside bank balance sheets—sometimes described as "shadow banking." Such nontraditional lending activities include the use of pawnbrokers as a tacit source of credit, advances on cross-border wage remittances, some microcredit activities, and the use of alternative "wealth management products." China clearly stands out as having large credit creation outside the formal banking system. The striking trend toward disintermediation, previously flagged in Box 1.5 of the September 2011 GFSR and Box 2.7 of the October 2012 GFSR, has accelerated in recent months. Of the 15 trillion renminbi ($2.4 trillion) in net new credit extended during 2012, some 40 percent came from nontraditional sources, notably trust funds and the corporate bond market, which expanded at high double-digit rates (Figure 1.77).

Growth in these market segments reflects regulatory arbitrage—agents finding ways to bypass restrictions on loan growth and deposit remuneration—as well as deliberate efforts by the authorities to liberalize and diversify the financial system. This diversification improves access to financial services, but it also raises fresh concerns about financial stability, as many of the new funding channels remain linked to the banking system, and most have yet to be tested in a time of market stress.

An extension of recent trends would impair financial stability in emerging market economies.

Lower interest rates and favorable external financing conditions have eased risks and supported growth in emerging market economies, but prolongation of such conditions will likely lead to the buildup of vulnerabilities and potential instability. In responding to this environment, emerging market economies need to guard against the accumulation of too much leverage in corporate and household balance sheets, while ensuring that bank capital buffers are adequate to withstand shocks and capital flow reversals. This may require the imposition, for example, of limits on growth of very rapidly expanding credit segments. In certain circumstances, capital flow measures may be appropriate, although they should not substitute for warranted macroeconomic adjustment. At the same time, cross-border coordination of policies can help to mitigate the riskiness of capital flows. Finally, supervisors should carefully monitor sources of potential instability in the shadow banking system.

Policies for Securing Financial Stability and Recovery

Policymakers have gained ground in addressing financial system vulnerabilities. Acute liquidity stresses have abated and financial conditions have improved. But further policy actions are needed to address balance sheet weaknesses in the private sector and ensure credit channels are open, to support economic recovery and avoid falling into a more chronic crisis phase. The regulatory reform agenda remains incomplete, and consistent implementation remains a priority.

Further strengthening of bank balance sheets and business models is needed to improve banks' capacity and willingness to lend.

Banks in advanced economies have made significant progress in restructuring their balance sheets, but progress has been uneven. Country systems are at different stages of repair, reflecting both the extent to which they have addressed legacy problems and the cyclical pressures they currently face. The current low valuations of bank equities reflect these difficulties, but also signal investor uncertainty about the book valuations of bank assets, banks' calculations of risk-weighted assets, and the risks of lender forbear-

ance. The persistence of large-scale losses and failures of significant banks underscores the need for a thorough external review of bank asset valuations.

In the euro area, reviews of bank asset valuations need to be combined with mechanisms to remove bad loans from impaired bank balance sheets, with European Stability Mechanism (ESM) financing if needed. Banks should restructure loans, but within strict criteria, transparent disclosure, and adequate classification and provisioning. This will also require intensive monitoring by supervisors to ensure that the restructurings are done on this basis. Following the recent example of Spain's SAREB, after independent reviews by external parties, state-backed asset management companies (AMCs) or other mechanisms could be established to warehouse and manage the stock of badly impaired assets in a controlled manner, with robust provisioning requirements giving banks the incentive to value and write-down impaired and nonperforming loans. The process will require banks to raise capital to absorb accelerated losses, with burden-sharing by junior creditors if needed, before any recourse is made to the ESM.

The establishment of the euro area Single Supervisory Mechanism (SSM) provides an opportunity to bolster trust in banks as supervisory responsibility for large and intervened banks is transferred to the ECB. Maximizing the opportunities presented by this reform requires fast and sustained progress toward an effective SSM alongside other elements of banking union. A Single Resolution Mechanism should become operational at around the same time as the SSM becomes effective and needs to be accompanied by agreement on a time-bound road map to set up a single resolution authority, and a euro area deposit guarantee scheme, with common fiscal backstops. Proposals to harmonize minimum capital requirements, resolution, common deposit guarantee schemes, and insurance supervision frameworks at the EU level should be implemented promptly. Modalities and governance arrangements for ESM direct recapitalization of banks should also be clarified. Without these reforms, bank creditworthiness will remain inexorably tied to that of the home sovereign and, as confirmed by events in Cyprus, constrained sovereigns may not be able to underwrite an impaired bank's liabilities.

In the United States, banks have announced a number of measures aimed at reducing operating expenses and restructuring business lines, but progress so far has been slow, and valuations would suggest that investors are still awaiting credible measures to sustainably improve returns. Investors remain concerned about the opacity of more complex business models as systemic banks housing significant broker-dealer operations continue to trade at lower multiples than monoline banks with clearer lines of business. The challenges posed by the changes in bank business models will require close surveillance, and dealing with too-big-to-fail banks remains a key issue. The U.S. authorities should persevere with the reform of money market mutual funds to curtail the chance that the authorities would be forced into systemic support in a future crisis.

Regulation is at a crossroads—the reform agenda needs to be completed and then consistently implemented.

As with the restructuring of banks, the reform of financial sector regulations has progressed but the process remains incomplete. In part, the implementation of reforms has rightly been phased in to avoid making it harder for banks to lend while regaining their strength. But the delay also reflects the difficulty in agreeing on key reforms, due to concerns about banks' ability to contend with structural challenges against the backdrop of low growth.

Delay in implementing needed reforms is not only a source of continued vulnerability, but also results in regulatory uncertainty, which in turns delays key business decisions in the financial sector, potentially worsening credit and market dislocation. It also fosters the proliferation of uncoordinated initiatives to directly constrain banking activity in different jurisdictions and ring-fencing of operations (Table 1.7). These various initiatives all reflect the political imperative to act on financial sector vulnerabilities, but arguably without a comprehensive consideration of the costs and benefits as well as their spillovers. Care should be taken lest these initiatives become inconsistent with the efforts to harmonize minimum global standards and thus hamper, rather than complement, the effectiveness of the G20 reform agenda.

Table 1.7. Comparing Proposals for Structural Reform

	Liikanen group report	United Kingdom	United States
Holding company with banking and trading subsidiaries	Permitted	Permitted	Not permitted
Deposit taking institution dealing as principal in securities and derivatives[1]	Not permitted (but other group companies may do so)	Not permitted (but other group companies may do so)	Not permitted
Deposit taking institution investing in hedge funds and private equity	Not permitted (but other group companies may do so)	Not permitted (but other group companies may do so)	Not permitted
Deposit taking institution providing market making services	Not permitted (but other group companies may do so)	Not permitted (but other group companies may do so)	Permitted
Deposit taking institution's non-trading exposures to other financial intermediaries	Unrestricted	Restricted	Unrestricted
Higher loss absorbency rule[2]	Yes, via leverage ratio for trading business that exceeds size threshold	Yes, as add-on to the conservation buffer for U.K. ring-fenced bank	For SIBs with substantial U.S. footprint
Size threshold for application	Yes; applies to all banks with trading books larger than €100 billion, or trading assets more than 15–25 percent of balance sheet	Yes; applies to all banks with deposits greater than £25 billion and to all building societies	No
Enacted into law	No	Scheduled for completion by 2015	Yes
Implementing regulations finalized?	No	No	No

Source: IMF staff.

[1]U.S. federal government and agency securities, debt and securities issued by U.S. state and municipal governments and government-sponsored enterprises, and derivatives on these securities are exempt from proprietary trading restrictions of the Volcker rule.

[2]The Dodd-Frank Act subjects U.S. banks with assets in excess of $50 billion to more stringent prudential requirements. Similar requirements have been proposed, under the recent Intermediate Holding Company proposal, for non-U.S. banks with more than $50 billion in global assets that have a systemically important presence in the United States.

Policymakers must therefore take decisive action to restructure weak banks and encourage the build-up of the new capital and liquidity buffers on an internationally consistent basis. The new international banking rules—Basel III—need to be implemented; and further work is needed on the too-big-to-fail problem, over-the-counter derivatives reform, accounting convergence, and shadow banking regulation. The recommendations of the Enhanced Disclosure Task Force—a private sector group formed under the auspices of the Financial Stability Board (FSB) to improve financial reporting by banks—should become a global standard embraced by banks and national authorities. Better disclosures, including higher transparency and prudent and consistent valuation of risk-weighted assets, will go a long way to improve market discipline and restore confidence in banks' balance sheets.

The capability to resolve financial institutions without severe disruption to the financial system and cost to taxpayers is critical. The FSB is promoting the establishment of effective resolution regimes that allow for the orderly exit of unviable banks. The IMF is advising countries—global financial centers in particular—to swiftly adopt resolution regimes, including effective cross-border agreements for handling a failure and to require a minimum amount of liabilities that can be "bailed in" during resolution. The recent joint initiative by the U.S. Federal Deposit Insurance Corporation and the Bank of England to coordinate contingency plans for winding down failing cross-border banks is welcome; other financial centers should join this initiative.

Without greater urgency towards international cooperation in agreeing a comprehensive approach to bank restructuring, the danger of deadweight bank balance sheets will weigh on recovery. And implementation of unilateral national measures may result in a situation where the net benefits accrue nationally but the costs are borne elsewhere.

From a financial stability perspective, it is important that the level and structure of compensa-

tion align incentives with prudent risk-taking and ultimately with performance. Major financial centers should adopt FSB guidelines on compensation, including deferral of remuneration, gradual vesting of commitments, and clawback arrangements.

The flow of credit to solvent small and medium-sized enterprises needs to be improved.

Lending to the SME sector in Italy and Spain is shrinking rapidly. While credit demand is constrained by heightened uncertainty over the macro outlook and debt overhangs, any supply constraints to SME financing should be addressed as a priority to ensure that the financial system is able to play its role in facilitating economic recovery. This can be supported in the short term by:

- *Easing the cost of bank lending to SMEs* in the euro area by allowing a broader set of loans to be used as collateral for ECB financing purposes, with applying more moderate haircuts. This can be facilitated through national central banks, making greater use of their capability to rate the credit quality of SME loans, and also potentially run a credit register in the absence of private alternatives. In addition, European Investment Bank or national development bank assistance can be used to guarantee trade credit or SME working capital.[57]
- *Ensuring that legal and commercial regimes for loan collection are effective.* Lenders in many countries confront serious delays in repossessing collateral in the event of default.[58] Policymakers should ensure that legal processes and arbitration mechanisms are available to expedite loan work-outs in an orderly fashion.
- *Ensuring that distressed assets are properly valued to facilitate their sale, restructuring, or write-off.* Supervisors need to require objective impairment recognition that gives prudential considerations to provisioning while adhering to recognized accounting standards.
- *Reducing government payment arrears* to inject working capital directly into local economies. The backlog of unpaid government liabilities is a notable problem in Greece, Italy, and Spain–particularly at the regional and municipal levels. Spain has partially addressed the issue through a central government initiative to cut regional government payment delays, and Italy has announced a new initiative to accelerate the payment of €40 billion of general government arrears.

Greater access to capital markets by SMEs needs to be promoted.

To counteract the impact of EU bank deleveraging on SME finance, nonbank channels can be encouraged by ensuring that legal, accounting, and market infrastructures are sufficiently developed for firms and SMEs to issue commercial paper and high yield debt, and to raise equity. Authorities can bolster the confidence of nonbank investors and lenders by establishing transparent and reliable accounting standards, enhanced disclosures, a stable tax regime, and reliable court processes to expedite collateral recovery.[59]

Policymakers should also further the restoration of private securitization channels. This will require a realistic risk-based assessment of capital requirements for banks to originate and insurers to hold structured securities. Current EU proposals for capital required on structured assets under Solvency II render them effectively uneconomic for insurers to hold. Also, sufficient transparency of the underlying structures is needed to address investor and rating agency concerns. For instance, in Europe, the introduction of Prime Collateralized Securities (PCS) is a market-led initiative to assign a label to securitization issues meeting predefined best practice standards.[60] The label will be assigned only to securitizations backed by asset classes that have performed well during the recent

[57]The United Kingdom has introduced a Funding for Lending Scheme. The aim of the scheme is to boost the incentives for banks and building societies to lend to U.K. households and nonfinancial companies.

[58]Greece, Ireland, Italy, and Portugal are examples of countries where the expected time to recover collateral is generally more than two years, compared with more reasonable time frames of two years or less in Belgium, the Netherlands, and the United Kingdom (see Fitch Ratings, 2013).

[59]For example, nonbank investors could be dissuaded from buying Italian mortgages, given the 8 to 10 years required to foreclose on a property.

[60]The PCS initiative is promoted by the Association for Financial Markets in Europe (AFME). Encouragingly, Commerzbank has recently sold a new type of covered bond backed by SME loans.

crisis and are of direct relevance to the real economy, including residential mortgages and SME loans.

Private debt overhangs need to be reduced to complement the clean-up of bank balance sheets . . .

One reason for the failure of advanced economies to respond to substantial monetary and fiscal stimulus as vigorously as hoped is that household and corporate sectors in many countries remain heavily indebted. Such overhangs need to be addressed by tackling both the stock of past debt and the flow of new financing. More effort is needed to facilitate the work out and collection of defaulted debt. Key will be strengthening lenders' ability and willingness to recognize and negotiate effective workouts, including as appropriate debt write-downs and debt-for-equity swaps.

As noted, the corporate debt overhang is particularly large in some euro area peripheral economies. This can be mitigated through the sale of foreign assets by larger firms, but further reductions in operating costs, dividends, and capital expenditures may also be required, posing additional risks to growth and market confidence. Hence, a resolution of euro area fragmentation is critical to lowering funding costs and effecting an orderly corporate deleveraging. In particular cases, the suspension of dividends may be considered as a policy option, along with loan principal reductions.

. . . and prevent credit excesses from becoming systemic.

Monetary policy in major economies is committed to continued substantial easing for several years into the current expansion. Chapter 3 argues that the unconventional policies used by the major central banks pose little risk to liquidity in the affected markets and have generally supported banks' health (though there is some evidence of a delay in balance sheet repair). That said, underwriting standards are being relaxed at a much earlier stage of the cycle than usual in some credit markets. Accordingly, systemic risks could arise sooner, from less traditional sources, and spill over from the United States to emerging market economies. Accordingly, financial regulation and supervision will need to play a proactive role in this cycle at both the macro- and microprudential levels. Restraining a rapid rise in leverage and encouraging prudent underwriting standards will remain key objectives.

Policymakers in emerging market economies are increasingly faced with a very difficult balancing act.

The persistence of favorable financing terms available to emerging market borrowers may lay the foundation for future stability challenges. Rising corporate leverage and increased foreign exchange exposure raise an economy's vulnerability to sudden movements in interest and/or exchange rates. To a lesser extent, banks appear to be in a similar situation; they are benefiting from favorable interest rate spreads and strong capital ratios, while being potentially vulnerable to impairments in asset quality and, in some cases, shocks from informal credit channels. Policymakers must remain vigilant to guard against the buildup of financial system risks emanating from potential deterioration in banks' asset quality and disruptive short-term capital flows.

If macroeconomic policy is determined with respect to the domestic economic cycle, macroprudential policies may need to be deployed to smooth the credit cycle and prevent the excessive buildup of leverage and illiquidity. Prudential measures have been tightened in several countries throughout 2012—including China, Hong Kong SAR, and Singapore—but further fine-tuning may be needed to bolster financial stability including the imposition of limits on the growth of very rapidly expanding credit segments and constraints on banks' unhedged foreign exchange borrowing. Policymakers may also need to consider the adoption of dynamic capital buffers while robust recognition of impaired loans (in accordance with international standards) will ensure adequate write-offs of troubled loans early in the credit cycle. Countries with a high ratio of household debt to GDP, such as Korea and Malaysia, should focus on measures to keep this ratio in check. Nevertheless, since macroprudential measures may be slow or uncertain in their effects, capital flow management measures may also be needed to mitigate the build-up of risks. Cross-border coordination among countries that generate and receive large capital flows can also play an important role in mitigating the riskiness of such flows.

Annex 1.1. Corporate Debt Sustainability in Europe

In this exercise, we analyze debt sustainability in the European corporate sector defined as firms' ability to generate non-negative net free cash flows over the medium term.[61]

Macro Data on Corporate Debt

Corporate leverage is significantly higher in the euro area periphery than in other advanced economies. Central bank flow of funds data covering the entire corporate sector shows that corporate debt increased significantly across Europe during the last decade, except in Germany (see Figure 1.27, panels a and b). The increase in debt was particularly marked in the periphery, resulting in significantly higher leverage as measured by debt-to-GDP and debt-to-equity ratios (Table 1.8).

Recent Developments in Corporate Fundamentals

High frequency data for large investment-grade firms show that fundamentals of firms in the periphery continue to deteriorate relative to the core. While leverage of firms in the core has remained stable during the last decade, leverage of firms in the periphery has increased steadily (Figure 1.78, panel a). Interest coverage ratios are also significantly lower for firms in the periphery than for those in the core (Figure 1.78, panel b). Firms in the periphery have benefited to a lesser extent from monetary easing due to remaining fragmentation, while profit growth remains much weaker than during the credit boom (Figure 1.78, panel c). The implications of weaker fundamentals of large firms in the periphery are also evident in their capital expenditures, which have failed to recover. In contrast, capital expenditure growth in core companies has recovered to pre-Lehman Brothers highs, without a discernible effect from the euro area sovereign crisis (Figure 1.78, panel d).

Note: Prepared by Sergei Antoshin, Yingyuan Chen, and Jaume Puig.

[61]The medium term corresponds to the *World Economic Outlook* forecast horizon, 2013–18.

Table 1.8. Nonfinancial Corporate Debt and Leverage

		Gross Debt (percent of GDP)	Debt over Equity (percent)
Euro area	Greece	75	237
	Ireland	291	135
	Italy	115	140
	Portugal	157	154
	Spain	180	152
	Belgium	187	52
	France	157	78
	Germany	95	134
	Euro area	138	107
Rest of the world	United Kingdom	118	88
	United States	89	82
	Canada	61	48
	Japan	136	176

Source: National central banks flow of funds data.

Note: Based on Table 2.1 in the October 2012 GFSR. Cells shaded in red indicate a value in the top 25 percent of a pooled sample of all countries shown from 1990 through 2010 (or longest sample available). Green shading indicates values in the bottom 50 percent; yellow is in the 50th to 75th percentile. Gross debt figures include securities other than shares, loans, and other accounts payable. Intercompany loans and trade credit can differ significantly across countries. Consolidated debt levels are significantly lower for some countries, especially those with a strong presence of multinational companies with large intercompany loans.

Sample

Data Description

The analysis of corporate debt sustainability presented in this GFSR focuses on firm-level annual data from Worldscope. The sample from Worldscope includes about 1,500 publicly traded companies, with average coverage of 30 percent of the corporate sector by assets in the euro area and the United States (Table 1.9). Using disaggregated data allows us to uncover vulnerabilities

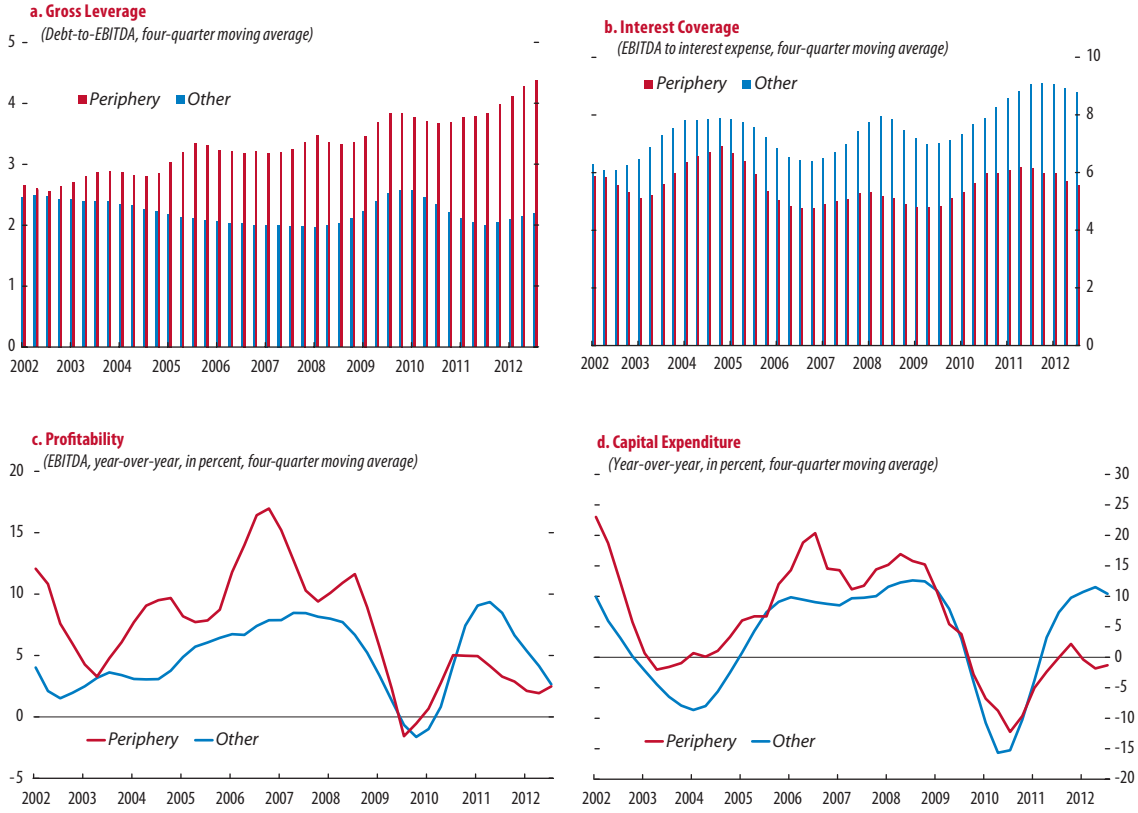
Table 1.9. Nonfinancial Corporate Database Coverage

	Number of Firms	Total Assets (billions of euros)	Percent of total[1]
France	193	2,293	29
Germany	191	1,873	36
Ireland	36	43	4
Italy	109	863	34
Portugal	41	132	22
Spain	92	695	21
Unted Kingdom	314	1,952	n.a.
United States	797	12,413	29

Source: Worldscope.

[1]In percent of financial and nonfinancial assets of the entire corporate sector, based on central bank flow of funds data, and staff estimates. The comparatively low percentage for Ireland reflects the large multinationals operating in the country that are not publicly listed on the Irish stock exchange.

Figure 1.78. European Investment-Grade Corporate Fundamentals



Source: Morgan Stanley.
Note: EBITDA = earnings before interest, taxes, depreciation, and amortization. Periphery = Cyprus, Greece, Ireland, Italy, Portugal, and Spain; Other = Austria, Belgium, Denmark, Finland, France, Germany, Iceland, Luxembourg, the Netherlands, Norway, Sweden, Switzerland, and the United Kingdom.

in the weak tail of businesses beyond those evident from aggregate flow of funds data. Data limitations prevent extending the analysis on firm-level data to the entire corporate sector for all countries considered in the exercise.

The sectoral breakdown of the sample by country shows that all the major sectors, in particular industrials, are well represented in each country (Table 1.10).

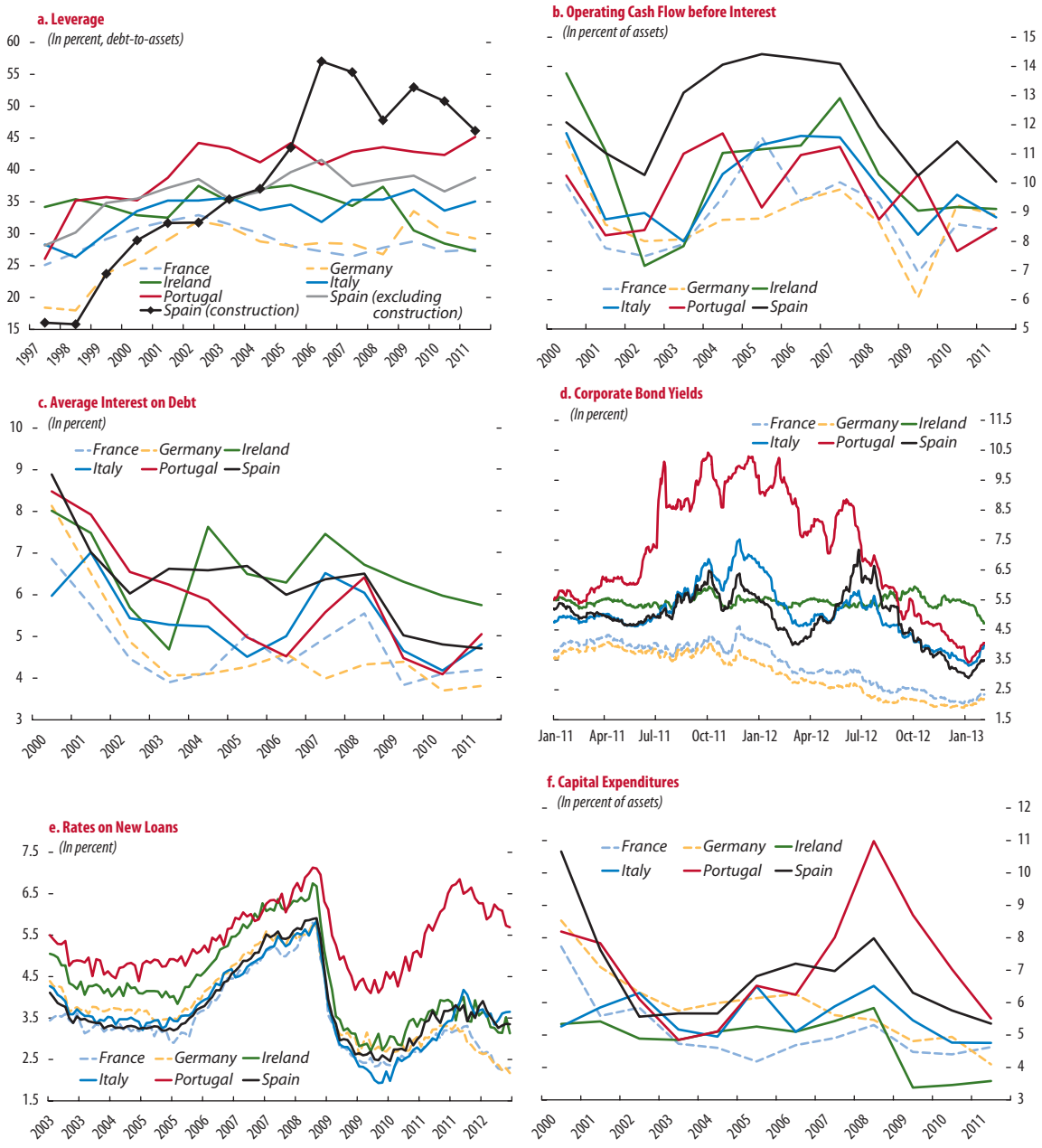
Main Developments in Sample Companies

Leverage of publicly traded corporations in the sample increased most significantly in Portugal and Spain during the last decade. While the increase was

Table 1.10. Corporate Sectoral Breakdown within the Sample
(In percent of assets)

	Consumer	Energy, Utilities, Materials	Industrials	IT, Telecom, Health Care
France	28	38	18	16
Germany	44	27	11	19
Ireland	32	42	19	7
Italy	17	55	17	11
Portugal	7	55	18	19
Spain	5	48	26	21
United Kingdom	14	68	10	8
United States	19	37	20	25

Figure 1.79. Developments in Publicly Listed European Companies



Sources: Bloomberg L.P. (panel d); European Central Bank and Haver Analytics (panel e); and Worldscope (panels a, b, c, and f).

most marked in the construction sector in Spain, the increase in leverage was more generalized in Portugal (Figure 1.79, panel a). Publicly traded corporations now face the challenge of servicing and repaying debt in an environment of lower profitability (Figure 1.79, panel b). Large firms benefited from lower policy rates after the Lehman crisis, but the effects on funding costs of increased fragmentation as a result of the euro area crisis started to be felt in 2011 (Figure 1.79, panel c). While the OMT helped bring down corporate bond yields and bank loan rates in late 2012 (Figure 1.79, panels d and e), these are

still higher than in the core. As highlighted by the analysis of corporate debt sustainability presented in the report, additional cuts in capital expenditures needed to restore debt repayment capacity in the weak tail of the sector could continue to pose headwinds to the recovery (Figure 1.79, panel f).

Comparison of Vulnerability Indicators for the System and the Sample

Strains in the entire corporate sector in the periphery are likely to be greater than in the sample. The vulnerability indicators shown in Table 1.8 demonstrate that leverage ratios are similar in the system and in the sample, profitability is lower in the system, and the weak tail measured by either profitability or debt at risk is greater in the system.

Framework

Corporate debt sustainability is defined as the capacity of firms to generate net free cash flows (NFCF) to at least keep the debt level stable or reduce it over the medium term (2013–18). NFCFs are operating cash flows after capital expenditures and dividends.

$$\text{Net Free Cash Flow} = \text{Operating Cash Flow before Interest} - \text{Interest Expense after Taxes} - \text{Capital Expenditures} - \text{Dividends}$$

$$\frac{\text{Net Free Cash Flow}}{\text{Assets}} = \frac{\text{Operating Cash Flow before Interest}}{\text{Assets}} \quad \text{(1) Operational profitability}$$

$$- \frac{\text{Interest Expense after Taxes}}{\text{Debt}} \times \frac{\text{Debt}}{\text{Assets}} - \frac{\text{Capital Expenditures}}{\text{Assets}} - \frac{\text{Dividends}}{\text{Assets}}$$

(2) Interest Rate; (3) Leverage; (4) Investment; (5) Dividends

We focus our analysis of debt sustainability on the weak tail of firms with high starting leverage and negative projected NFCFs. If starting leverage is high and NFCF is projected to be negative over the medium term, firms would be unable to reduce leverage without taking mitigating measures to improve their cash generating capacity. We define high leverage as companies with higher than 30 percent debt-to-assets ratio, in line with current leverage ratios in the core and pre-boom ratios in the periphery.

Scenarios and Forecasts

We project NFCFs of publicly traded firms based on World Economic Outlook (WEO) projections of GDP growth and interest rates under baseline, downside, and upside scenarios. For a sensitivity analysis, we employ a variety of other shocks that usually correspond to the maximum plausible outcomes of either corporate decisions or policy actions: such as a shift to the euro area upside scenario with significantly reduced fragmentation and productivity gains, a 25 percent cumulative cut in operating costs over the medium term due to restructuring, and a 25 percent cut in dividends or a permanent elimination of dividends in the periphery.[62]

1. Operating cash flows before interest are projected based on GDP growth under the WEO scenarios. We estimate sector- and country-specific, country-specific, and panel regressions where operating cash returns are regressed on GDP growth.
2. Interest rates are projected assuming equal shares of bank and bond financing for the sample of publicly traded companies, with one third of the debt stock assumed to be refinanced every year. Yields on corporate bonds are projected based on WEO assumptions for sovereign bond yields and on historical pass-throughs to corporate bond yields. Interest on new bank loans is projected based on market pricing of policy rate expectations; for periphery countries, gradual tightening in spreads over the policy rate is assumed based on historical pass-through from changes in sovereign spreads.
3. Leverage is kept constant as the focus of our analysis is on assessing the sustainability of current leverage levels given projected trends in profitability and interest rates.
4. Capital expenditures and dividends are also kept constant for the weak tail as the focus of our

[62] Dividends declined 50–60 percent during the last cyclical downturn for the sample. During the current cycle, dividends have already fallen 40–50 percent, implying an additional decline of only 10 percent. Thus, the assumed permanent reduction of 25 percent in dividends since is sizable, and a suspension or a moratorium on dividends would be unprecedented.

analysis is on assessing the capacity of firms to maintain current levels of investment and retribution of equity holders.[63]

Computations of Vulnerability Indicators

The Interest Coverage Ratio

To assess the ability of businesses to service debt, the interest coverage ratios (ICR) used in Figure 1.28 are calculated for the latest data point in the sample.

$$\text{ICR} = \frac{\text{Earnings before interest, taxes, depreciation, and amortization (EBITDA)}}{\text{Interest Expense}}$$

The weak tail of corporations according to the ICR is calculated as the share of debt at firms with both the leverage ratio above 30 percent and the ICR below 1 (currently unable to service debt) and the ICR below 2 (likely unable to service debt under plausible negative shocks).[64]

The Weak Tail Based on NFCF

To assess the ability of firms to repay debt, we project NFCFs (used in Figure 1.29) over the medium term. The weak tail of publicly traded companies with limited capacity to repay debt is defined as those that have relatively high starting leverage levels—above 30 percent—and are projected to have negative NFCF over the medium term under the baseline scenario.

Debt Overhang

The size of the debt overhang (used in Figure 1.30) can be estimated from the difference between the current leverage ratio and the "prudent" leverage ratio. The "prudent" leverage ratio is derived by setting NFCF equal to zero and working out the leverage ratio (item 3 in the formula), given projections of our variables in the NFCF formula. Different "prudent" leverage levels are calculated under baseline and downside WEO scenarios implying different medium-term projections for profitability and financing costs.

Effectively, the "prudent" leverage ratio reduces interest expense to a sufficiently low level to prevent negative NFCFs that would result in explosive debt path. Higher than "prudent" leverage levels imply that, given the projected cost of debt, firms are unable to (1) generate positive NFCFs over the medium term; (2) maintain current levels of capital expenditures to prevent negative contributions to growth; and (3) pay dividends consistent with a stable equity investor base. Firms in this situation are expected to either sell assets to repay debt, or to improve their cash flows through a combination of durable cutbacks in operating costs, capital expenditures, and/or dividends. Each of these options at the aggregate level has implications for employment, potential growth, and equity markets.

The Impact on Capital Expenditures

For the weak tail of firms with negative cash flows and high leverage, we compute the necessary reduction in capital expenditures to achieve zero NFCF and stabilize debt. To estimate the full impact (used in Figure 1.31), capital expenditures are reduced to the extent that net free cash flows reach zero or capital expenditures are fully collapsed. The partial effects on capital expenditures are calculated when other mitigating measures are used as well (cuts in operating costs, cuts in dividends). The necessary reduction in capital expenditures is estimated for the three WEO scenarios.

[63] This is a conservative assumption, as growth in capital expenditure at the aggregate level should be consistent with GDP growth projections.

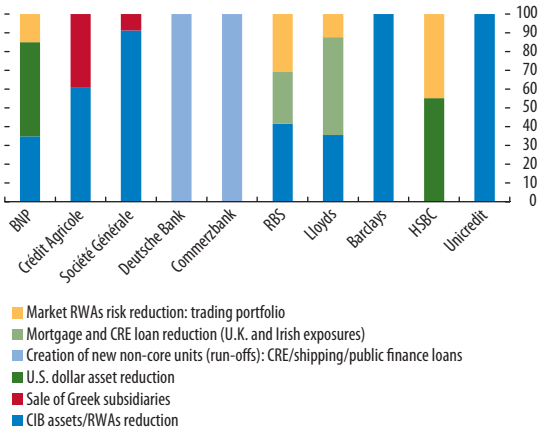
[64] Rating agencies estimate that coverage ratios around 2 are broadly consistent with B ratings, which suggests about 20 percent probability of default over a five-year horizon.

Annex 1.2. European Bank Deleveraging Plans: Progress So Far

Major European banks with preannounced restructuring (deleveraging) plans have made significant progress in shedding noncore and legacy assets (Figure 1.80 and Table 1.11). Most banks identified certain assets as noncore subject to run-offs, based on a combined set of criteria, including competitive advantage, profitability, and risk weights. These assets mainly included corporate and investment banking (CIB) exposures, the euro area periphery exposures, real estate loans, and legacy trading portfolios.

Note: Prepared by Nada Oulidi.

Figure 1.80. Progress in Deleveraging Plans across Sample Banks, 2012
(In percent)



Source: IMF staff estimates.
Note: CIB = corporate and investment banking; CRE = commercial real estate; RWAs = risk-weighted assets.

Table 1.11. Progress on Deleveraging/Restructuring Plans of Selected European Banks, as of End-2012 or Latest Available

Bank	Date[1]	Reasons	Objectives	Progress so Far
Erste Group		Compliance with Basel III	Reduce noncore assets (structured products and specific loan segments).	Completed restructuring plans through a reduction of RWAs by €2.3 billion and a reduction in loans and CDS positions.
BNP Paribas	2011	Reducing dependence on U.S. dollar funding, and compliance with Basel III	Reduce U.S. dollar funding needs by $65 billion, reduce CIB RWAs by $45 billion, add 100 basis points of additional Common Equity Tier 1 (CET1) capital to reach a 9 percent fully loaded Basel III CET1 ratio.	Completed adaptation plan. Reduced U.S. dollar funding needs by €65 billion in April 2012 through the sale of reserve-based lending activity in the U.S. trading book, and sale of loans. Reduced CIB RWAs by €45 billion through selective loan origination and disposals of assets. Reduced an additional €13 billion in RWAs through decreased market risks. Sold 29 percent stake in Klepierre (a commercial real estate company) and Egypt subsidiary. RWAs were reduced by approximately €70 billion in total.
Credit Agricole	2011	Reducing dependence on U.S. dollar funding, and compliance with Basel III	Improve loan-to-deposit ratio, reduce liquidity needs in specialized financial services and CIB (disposal of loan portfolios in financing activities by more than €7.5 billion), dispose of CDOs, U.S. RMBS portfolio to reduce RWAs by €17 billion, dispose of correlation book to reduce RWAs by €31 billion.	Completed adjustment plan. Disposed of loan portfolios in financing activities, CDOs, U.S. RMBS, and correlation books, contributing to a reduction of €31 billion in RWAs. Signed the contract for the sale of its Greek subsidiary Emporiki to Alpha bank. Emporiki has a balance sheet of over € 20 billion. The transaction is expected to reduce RWAs by about €18 billion. Liquidity needs decreased by a total of €51 billion.
Societe Generale	2011	Reducing dependence on U.S. dollar funding, and compliance with Basel III	Improve capital ratios. Reduce legacy and non-investment-grade assets and sell CIB loans.	Sold €36 billion in CIB and legacy assets. CIB RWAs declined by about €26 billion compared with a target of €30 billion. Completed sale agreement of Greek subsidiary Geniki (balance sheet of about € 2.5 billion), U.S. subsidiary TCW, and Egyptian subsidiary (balance sheet of €8 billion). These subsidiaries are self-funded and the decision to sell them is for capital generation purposes. Scaled-down origination of CRE, export finance, and shipping loans that are funded in U.S. dollars.
Deutsche Bank	2012	Compliance with Basel III	Reach fully loaded Basel III CET1 ratio of 8 percent by 2013:Q1 and 10 percent by 2015:Q1. Transfer €122 billion of assets (Basel III RWAs of €125 billion), mostly legacy investment banking positions, to a noncore unit of which €45 billion in RWAs will be reduced before 2013:Q2.	New plan.

(continued)

Table 1.2.1. Progress on Deleveraging/Restructuring Plans of Selected European Banks, as of End-2012 or Latest Available *(continued)*

(continued)

Bank	Date[1]	Reasons	Objectives	Progress so Far
Commerzbank	2009	State-aid rules	The bank announced two plans: the first one in 2009 aimed at winding down over time all activities in commercial real estate, shipping, and public finance, running down asset-backed finance and portfolio restructuring units, selling Eurohypo, and meeting the 2011 EBA capital requirement through RWA optimization. The second plan announced in September 2012 breaks down assets into core and noncore (€130 billion) and aims at winding down Eurohypo. Announced job cuts of 4,000–6,000 to meet profit targets.	Sold minority interest in Russian subsidiary and agreed to sell majority shareholdings in Ukrainian subsidiary. Decreased proportion of short-term wholesale funding and completed funding plan for the year, by mid-year.
Unicredit	2011	Compliance with Basel III	Improve funding profile (loan-to-funding ratio, funding gap, deposit inflows, ability to tap wholesale funding), improve capital (increase Basel III capital, comply with the 2011 EBA capital requirement, improve RWAs through deleveraging and RWA optimization), refocus business in CIB and CEE (CIB run-offs to decrease RWAs, new origination in CIB subject to risk-adjusted capital efficiency rule, CIB focus on core activities and selective portfolio review). Ring-fence 11 percent of June 2011 group RWAs (€48 billion) for run-off, including a CIB RWA run-off portfolio of €35 billionn to be completed by 2015. Reduce costs (branch network reshaping and FTE reduction, other cost control actions).	CIB RWAs were reduced by €11 billion through reductions in loans and ring-fenced portfolio. Medium- to long-term funding was reduced by €31 billion in 2012. Funding gap declined by €42 billion due to an increase in deposits and a decline in loans. Sale of 9.1 percent stake in Pekao (Poland) was completed.
Santander	2011	Compliance with the 2011 EBA capital requirement	Sales of stakes in Latin American subsidiaries. In the United Kingdom, reallocate assets from mortgage to corporate loans.	Completed an IPO of up to 25 percent of Mexico operations in 2012:Q3, sold 4.4 percent stake in Santander Brasil, 100 percent of Colombian businesses, and 8 percent of Chilean unit.
BBVA	2011	Compliance with the 2011 EBA capital requirement	Increase retained earnings, RWA optimization, and balance sheet management.	Sold stake at Mexico pension fund manager for €1.74 billion.

RBS	2008	EU state-aid rules	Reduction of noncore assets from peak assets of £258 billion to £40 billion by end-2013.	Noncore asset run-down continued in 2012, declining by £36 billion. Funded noncore assets declined by £200 billion since 2008 as of December 2012, mainly through reductions in leveraged and structured finance, commercial real estate, securitizations, corporate loans, and asset finance. Total funded noncore assets remaining to be sold amount to £58 billion.
HSBC		Compliance with Basel III	Sale of noncore assets in North America, improvement of capital ratios.	Sold U.S. 21-million-dollar card and retail services business, resulting in a $26 billion fall in credit risk RWAs in 2012. There are also two significant portfolios currently being run down. Sold or agreed to sell a number of new businesses including a recent sale of $7.4 billion stake at Ping An (China's second largest insurer). U.S. RWAs reduced by a further $9 billion and market risk RWAs declined by $19 billion from reductions in positions.
Barclays	2013	Compliance with Basel III	Restructure Barclays European retail and corporate operations. Reposition Barclays European and Asian Equities and Investment Banking Division businesses. Close the Structured Capital Markets business unit. Reduce RWAs by £75 billion by 2015. Reduce operating expenditures by £1.7 billion and cut 3,700 jobs.	New plan.
Lloyds	2008	EU state-aid rules	Reduction of noncore assets to less than £70 billion by end 2014. The noncore portfolios consist of businesses that deliver below-hurdle returns, which are outside the group's risk appetite or may be distressed, are subscale or have an unclear value proposition, or have a poor fit with the group's customer strategy.	Noncore assets were reduced by £42 billion to £98.4 billion by end-2012, with a further reduction in noncore assets of at least £20 billion expected in 2013. Most sales were in Irish exposures, CRE, and trading portfolios.

[1]Date when the plan was first announced.

Source: IMF staff.

Note: CEE = Central and Eastern Europe; CIB = corporate and investment banking; CDOs = collateralized debt obligations; CDS = credit default swaps; CRE = commercial real estate; EBA = European Banking Authority; FTE = full-time equivalent; IPO = initial public offering; RMBS = residential mortgage-backed securities; RWAs = risk-weighted assets.

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