CHAPTER 1

GETTING THE POLICY MIX RIGHT

Financial Stability Overview

Financial stability has improved since the October 2016 Global Financial Stability Report *(GFSR). Growth is gaining momentum and reducing macroeconomic risks, rekindling hopes for reflation. Rising equity prices and steeper yield curves have mitigated some of the negative side effects of low interest rates for banks and insurance companies. Emerging market risks remain elevated but unchanged, as recovering commodity prices and modest deleveraging in some corporate sectors are offset by higher external financing risks and rising financial vulnerabilities in China. Despite these improvements, there are new downside risks and uncertainties around the policy outlook. A key risk is that U.S. policy imbalances could lead to tighter-than-expected financial conditions and a rise in volatility and risk aversion. A global shift toward protectionism could adversely affect trade and global growth. Thus, anchoring stability will depend heavily on policy choices at the national and global levels—it is crucial to get the policy mix right.*

Financial Stability Is Advancing

Better-than-expected incoming data and gathering growth momentum, as outlined in the April 2017 *World Economic Outlook* (WEO), have reduced near-term *macroeconomic risks* (Figures 1.1 and 1.2). Hopes for reflation have risen, as *monetary and financial conditions* remain highly accommodative, and anticipated U.S. fiscal measures and other reforms are expected to bolster growth. Reduced concerns about economic and financial stagnation have led to a shift in consensus and market-implied expectations toward higher growth, inflation, and long-term interest rates. Reflation expectations have taken hold across advanced economies (Figure 1.3).

Against this stronger economic backdrop, *risk appetite* has increased, as reflected in more buoyant investor confidence (Figure 1.2, panel 5). *Market and liquidity risks* have eased from elevated levels as risk premiums have fallen and volatility remains subdued. These trends in market indicators have been a global phenomenon, starting last September and accelerating following the U.S. elections (Figure 1.3, panel 3). Expectations for policy stimulus have also contributed to a stronger dollar and higher nominal and real U.S. Treasury security yields, spilling over to other advanced economy bond markets. Steeper yield curves have helped banks enhance profitability, while tighter corporate bond spreads, low rates, and ample market access have reduced refinancing risks, leading to a reduction in *credit risks*. Although emerging market economies have continued to enhance their resilience, higher inflation volatility in some countries and rising financial vulnerabilities in China have left *emerging market risks* unchanged.

Looking ahead, U.S. policy proposals under discussion aim to increase business confidence and investment, and the nonfinancial corporate sector is well positioned to benefit. But rising corporate leverage may challenge the capacity of some firms to expand investment without increasing stability risks. Growing signs of stretched valuations and the outperformance of certain sectors exposed to potential fiscal stimulus measures raise the risk that valuations may reflect overestimations of the potential benefits from policy initiatives and underestimations of downside risks (Figure 1.4). Policies should aim to enhance the effectiveness of proposed measures while safeguarding against the excesses of financial risk and market stability. These trade-offs and policies are examined in the section "Is the U.S. Corporate Sector Ready to Accelerate Expansion—Safely?"

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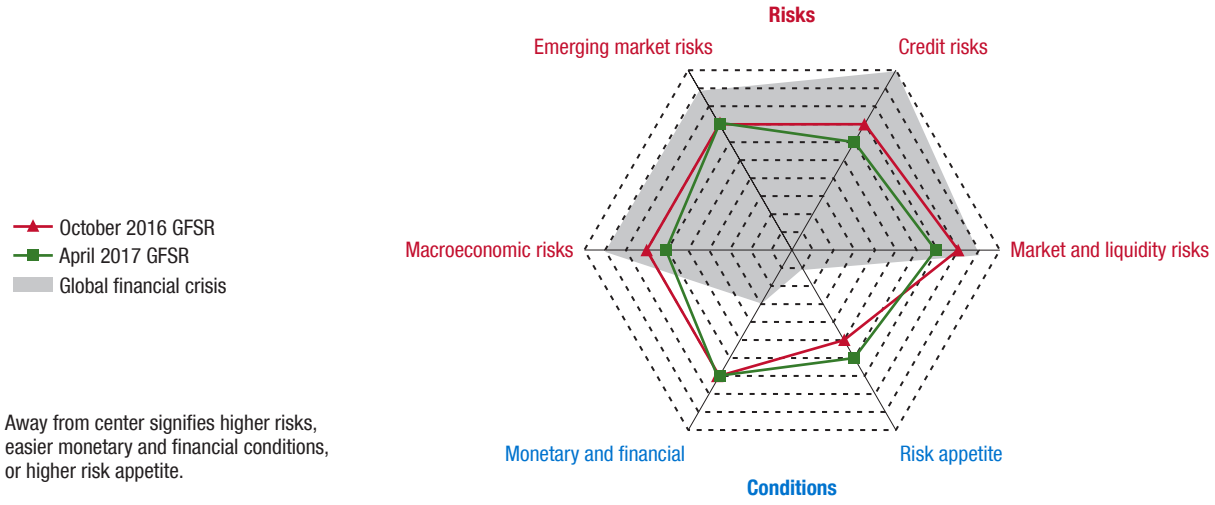
Figure 1.1. Global Financial Stability Map: Risks and Conditions



Source: IMF staff estimates.
Note: The shaded region shows the global financial crisis as reflected in the stability map of the April 2009 *Global Financial Stability Report* (GFSR).

European bank equity prices have risen on optimism about a cyclical upturn in the economy and some further steps toward resolving weak banks. However, a cyclical recovery is unlikely to be sufficient to restore the profitability of persistently weak banks, and more needs to be done to improve resilience. The system-wide structural impediments—characterized by operational inefficiencies, weak business models, inefficient allocation of credit, excess capacity, and a large legacy of bad debt—pose challenges, particularly for domestically oriented banks. Large international banks are also affected by these system-wide challenges, and unless these impediments are removed, business model restructuring alone is likely to be insufficient. More systematic and comprehensive policies are needed to address these profitability and legacy challenges and to reduce financial stability risks, as discussed in the section "European Banking Systems: Addressing Structural Challenges."

Policy Uncertainty Is a Key Downside Risk

Despite these improvements in financial stability, elevated political and policy uncertainty pose significant challenges. In the United States, policies could increase fiscal imbalances and raise global risk premiums (see the April 2017 WEO and *Fiscal Monitor*). Such an outcome could generate negative spillovers to emerging markets, reigniting capital outflows and raising credit and funding risks for banks as the external environment deteriorates, which would expose vulnerabilities (Box 1.1). A shift toward protectionist policies in advanced economies could adversely affect global trade and growth, capital flows, and market sentiment, resulting in adverse spillovers to emerging markets. Many emerging market economies would face rising vulnerabilities in their weakest banks as a result of asset quality and provisioning challenges following long credit booms that facilitated rising corporate sector leverage. Emerging market resilience is assessed against this increasingly uncertain global policy mix in the section "Emerging Market Economies Face Trying Times in Global Markets."

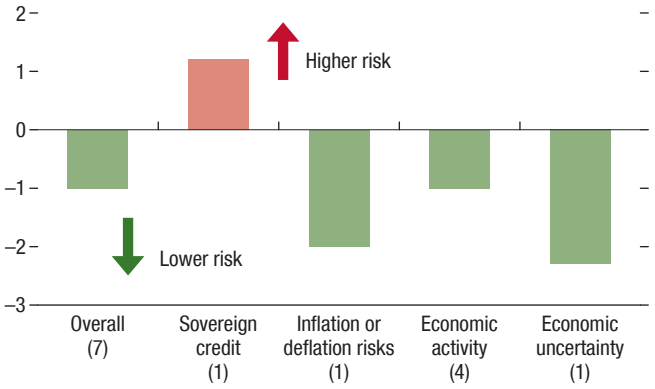
Getting the Policy Mix Right

Given these challenges, securing and building on improvements in financial stability and validating optimistic market expectations will require concerted and careful efforts by policymakers at the national and global levels. Policymakers need to adjust the policy mix to deliver a stronger path for long-term and inclusive growth while avoiding politically expedient but ultimately counterproductive inward-looking policies. Furthermore, the potential for a broad rollback of financial regulations—or a loss of global cooperation—could undermine hard-won gains in financial stability (Box 1.2).

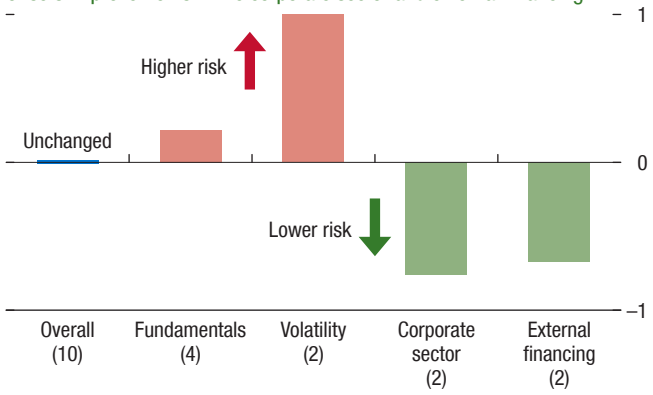
Figure 1.2. Global Financial Stability Map: Assessment of Risks and Conditions

(Notch changes since the October 2016 Global Financial Stability Report*)*

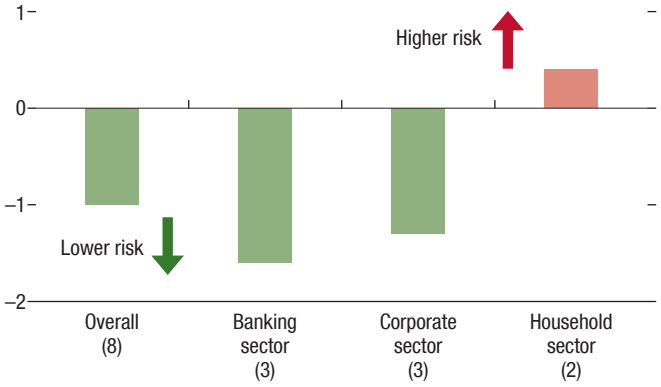
1. Macroeconomic risks have declined, driven by improving economic activity and lower inflation risks.



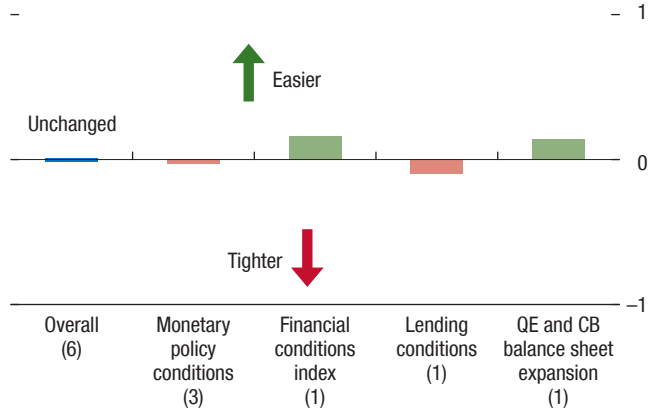
2. Emerging market risks remain elevated, as higher inflation volatility offsets improvements in the corporate sector and external financing.



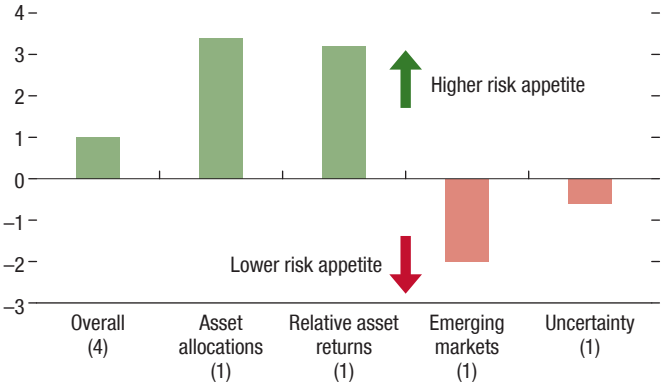
3. Credit risks have declined amid improvement in banks and the corporate sector.



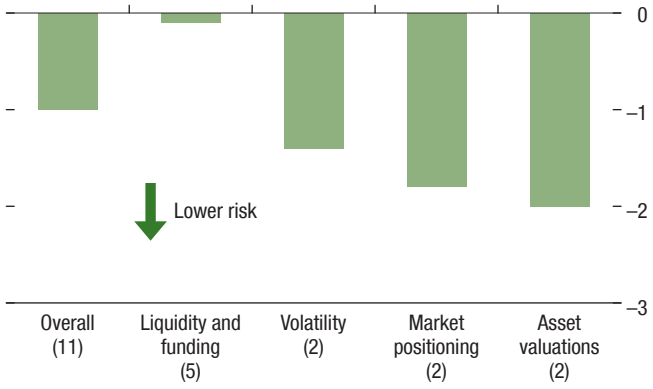
4. Monetary and financial conditions are unchanged, as tighter monetary policies are offset by easier financial conditions.



5. Risk appetite has strengthened as a result of improved confidence and gains in risk assets.



6. Market and liquidity risks have moderated from an elevated level against the backdrop of better liquidity conditions.



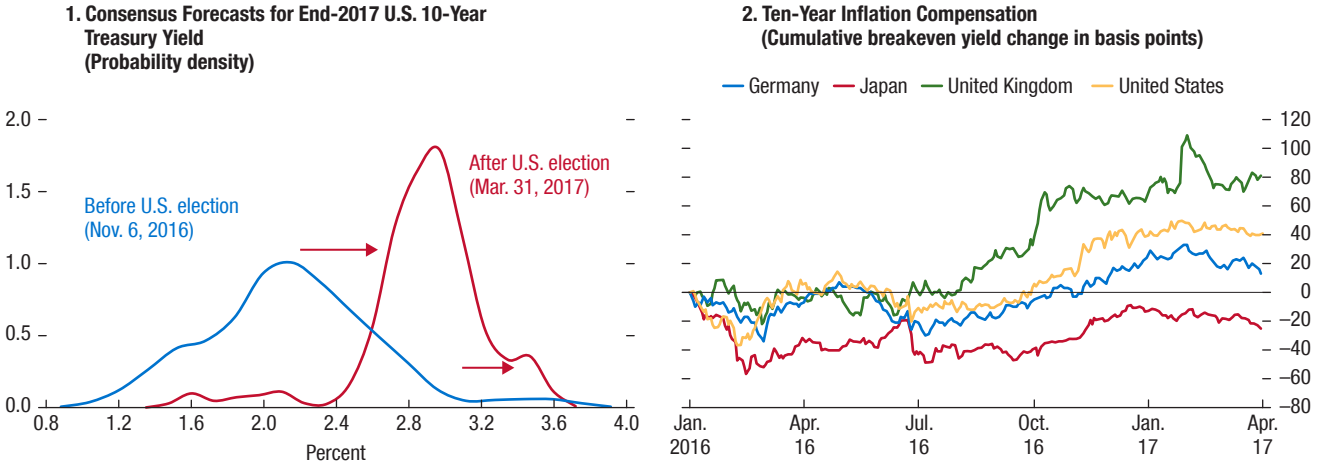
Source: IMF staff estimates.

Note: Changes in risks and conditions are based on a range of indicators, complemented by IMF staff judgment. See Annex 1.1 in the April 2010 *Global Financial Stability Report* and Dattels and others 2010 for a description of the methodology underlying the Global Financial Stability Map. Overall notch changes are the simple average of notch changes in individual indicators. The number in parentheses next to each category on the *x*-axis indicates the number of individual indicators within each subcategory of risks and conditions. For lending conditions, positive values represent a slower pace of tightening or faster easing. CB = central bank; QE = quantitative easing.

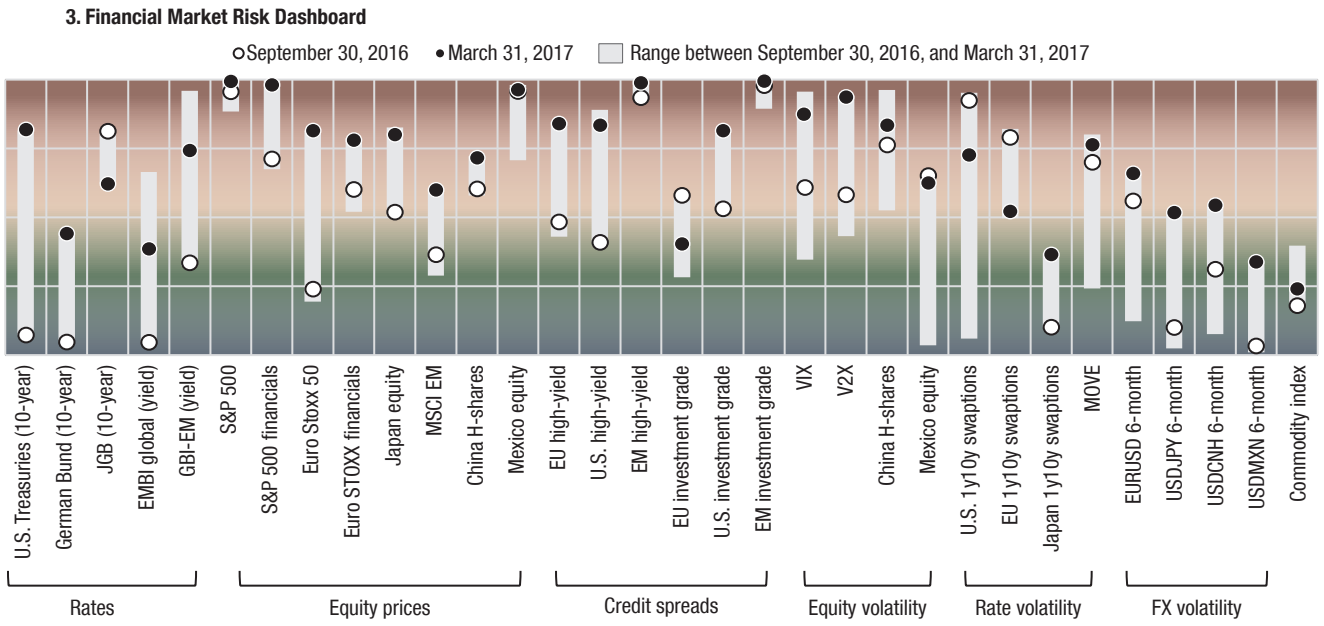
Figure 1.3. Reflation and Market Optimism

Market expectations for the U.S. economy and monetary policy normalization have improved ...

... and hopes are rising for reflation across advanced economies ...



... generating market optimism and a compression in volatility across a number of global markets.



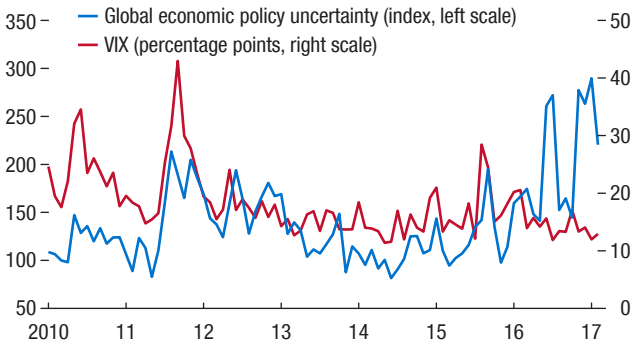
Sources: Bloomberg L.P.; Consensus Economics; and IMF staff estimates.
Note: In panel 3, each marker is a 30-day moving average of daily percentile rank in relation to the asset's three-year history. Closer to red represents higher prices and interest rates and lower spreads and volatility, and closer to blue is vice versa. EM = emerging market; FX = foreign exchange; GBI = Government Bond Index; JGB = Japanese Government Bond; MOVE = Merrill Lynch Option Volatility Estimate (a yield curve-weighted index of the normalized implied volatility on one-month Treasury options); MSCI = Morgan Stanley Capital International; V2X = Dow Jones Euro STOXX 50 Volatility Index; VIX = Chicago Board Options Exchange Market Volatility Index.

Figure 1.4. Assessments of U.S. Equity Valuations

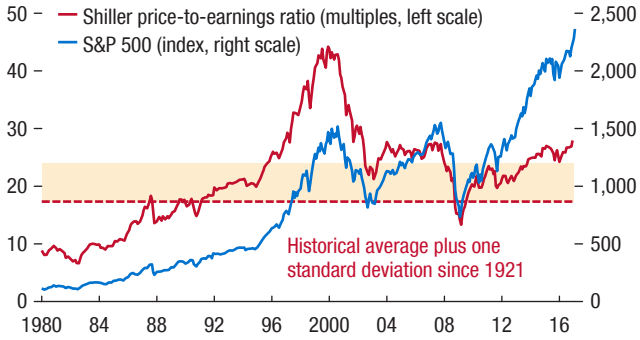
Despite greater policy uncertainty, implied volatility has declined to multiyear lows ...

... while U.S. equity valuations have become increasingly overvalued.

1. Policy Uncertainty and Implied Equity Volatility



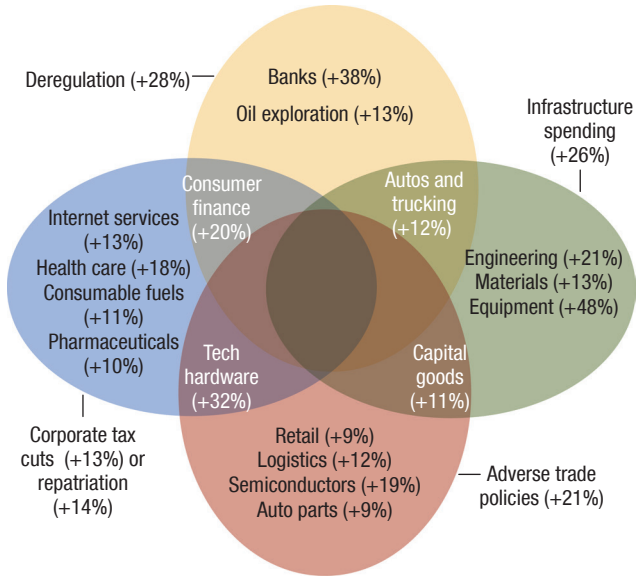
2. S&P 500 Index and Price-to-Earnings Ratio



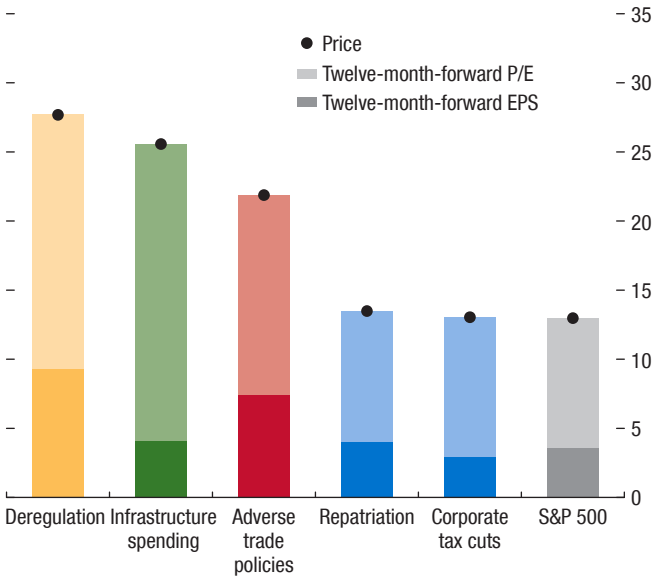
Some sectors have benefited disproportionately from the interplay of potential policies ...

... while expectations—not actual earnings—are driving valuations in sectors that would benefit from stimulus.

3. Performance of U.S. Equity Industry Subsectors (Percent change since U.S. election)



4. Valuation of U.S. Equities Exposed to Policy Shifts (Percent change since U.S. election)



Sources: Bloomberg L.P.; Haver Analytics; JPMorgan Chase & Co.; and IMF staff estimates.
Note: In panels 3 and 4, Corporate tax cuts = companies with high effective tax rates and domestic revenue exposures; Repatriation = companies with the largest total cash balances held by foreign subsidiaries; Adverse trade policies = trade-linked importers, outsourcers, and logistics firms; Infrastructure spending = firms that generate a significant portion of revenue from civil construction activities and revenue from within the United States; Deregulation = companies in sectors likely to experience regulatory relief, such as oil and gas, banks, consumer finance, and autos and trucking. EPS = earnings per share; P/E = price-to-earnings ratio; S&P = Standard and Poor's.

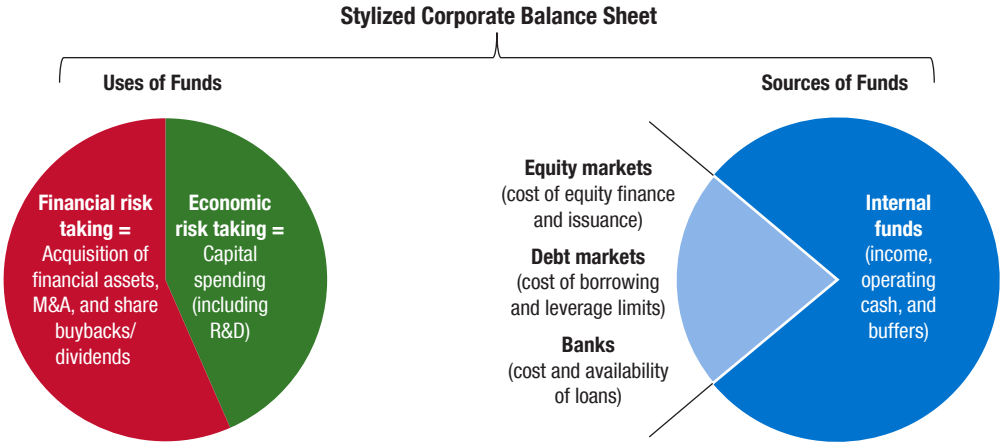
Figure 1.5. United States: Policies under Discussion and Financial Stability Risks

Key elements of policy stimulus proposals:

- **Corporate sector taxation**
  - –Potential reduction in corporate tax rate
  - –Interest deductibility/expensing investment
  - –Incentives for repatriation
- **Other** (infrastructure spending, deregulation, trade, and other policies)

Financial stability risks in the corporate sector:

- **Excessive financial risk taking**
- **Corporate leverage peaking**
- **Credit cycle maturing**
- **Heightened vulnerability to default risk**



Sources: S&P 500; and IMF staff.
Note: For more on the depicted breakdown of corporate balance sheets, see Figure 1.7, panel 5. Financial measures such as M&A and net payouts are included as financial risk taking. M&A = mergers and acquisitions; R&D = research and development.

Is the U.S. Corporate Sector Ready to Accelerate Expansion—Safely?

U.S. policies under discussion aim to increase economic growth. Healthy corporate balance sheets will be essential to facilitate the necessary increase in economic risk taking. Although the corporate sector has considerable balance sheet capacity to support an expansion, overall corporate leverage is elevated, leaving some segments vulnerable to higher financing costs. The sectors responsible for the most capital spending in recent years, such as energy, real estate, and utilities, may be challenged to expand investment without resorting to further debt financing. Policies should maximize the economic effectiveness of proposed measures while safeguarding against excesses of financial risk taking that could undermine financial stability.

U.S. Policies under Discussion and Economic Risk Taking

Policies under discussion by the new U.S. administration in the areas of tax reform and deregulation could significantly boost economic growth. Risk assets have rallied, and financial market sentiment has improved in anticipation of the stimulative elements of the policies being discussed. Such reforms could lead to a direct boost to the cash flow of firms and an indirect boost as a result of more favorable financial market sentiment.

The U.S. corporate sector will be a central conduit for such policies to gain traction and stimulate economic activity (Figure 1.5). Tax policy reforms, in particular, harbor the potential to boost *economic risk taking*—in the form of corporate capital spending—in two key ways. First, a cut in the statutory tax rate for corporations would directly boost corporate internal funds. The cash flow boost from such a tax cut could be amplified by policies to encourage the repatriation of foreign earnings. Second, eliminating interest deductibility of debt and immediate expensing capital expenditure could reduce the debt bias inherent in corporate financing decisions, putting equity finance on a more equal footing with debt financing.

Taken together, tax policy reforms under discussion could lay the groundwork for the corporate sector to support higher economic growth. Surveys capturing business sentiment have jumped to highs not seen in more than a decade (Figure 1.6, panel 1), suggesting an expected rise in corporate capital spending. This could help close a gap in corporate capital spending relative to higher historical growth by almost 2 percentage points of assets, or some $750 billion a year (Figure 1.6, panel 2).

Is the Corporate Sector Well Poised to Expand Economic Risk Taking?

One of the aims of tax policy stimulus is to help firms attain higher levels of capital expenditure. This transmission of policy stimulus through corporate balance sheets can be traced out in a scenario in which highly productive fiscal policy stimulus generates strong economic growth and boosts corporate cash flow, but with only a modest impact on interest rates.[1] Using sector level data, an illustrative exercise can provide estimates of three essential elements of the policy measures under discussion:

- A boost to operating cash flow from a 10 percentage point reduction in effective corporate tax rates, to proxy a *lower statutory corporate tax rate,* can be envisioned against the cash flow needed to reach the pre-2000 level of capital spending.
- The combined effect of expensing new capital expenditures and removing the tax deductibility of interest expenses.[2]
- The potential for a one-off *repatriation of retained foreign earnings,* including liquid funds held abroad.

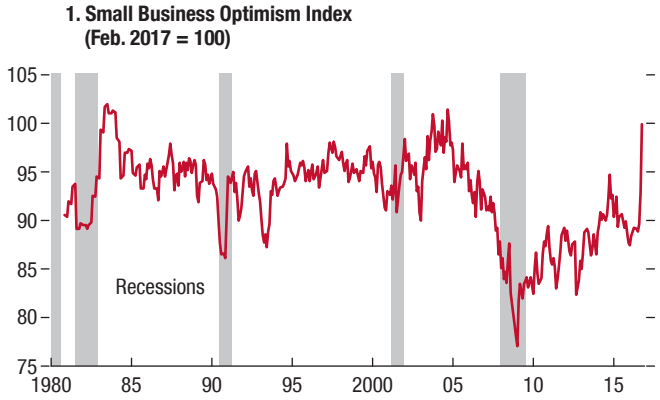
Results from these illustrative exercises suggest that with a benign policy mix, the nonfinancial corporate sector is ready to absorb stimulus and significantly boost capital expenditure. A cut to the *statutory tax rate* could provide a considerable cash flow impetus to Standard & Poor's (S&P) 500 firms, amounting to more than $100 billion a year, atop existing cash flow of more than $1 trillion. These tax-related windfalls could cover higher capital spending in seven of the ten main S&P 500 nonfinancial sectors (Figure 1.7, panel 1). The combined effect of *expensing investment* and the removal of *interest deductibility* would further increase cash flow in capital-intensive sectors—such as energy, real estate, and utilities (Figure 1.7, panel 2). *Repatriating liquid assets* held abroad by U.S. companies would also benefit the information technology and health care sectors, where 60 percent of the $2.2 trillion in unremitted foreign earnings held abroad is concentrated (Figure 1.7, panel 3).

[1]For more on scenario design, see Chapter 1, Scenario Box 1.1, of the April 2017 WEO. See also Chapter 1 of the April 2017 *Fiscal Monitor*.

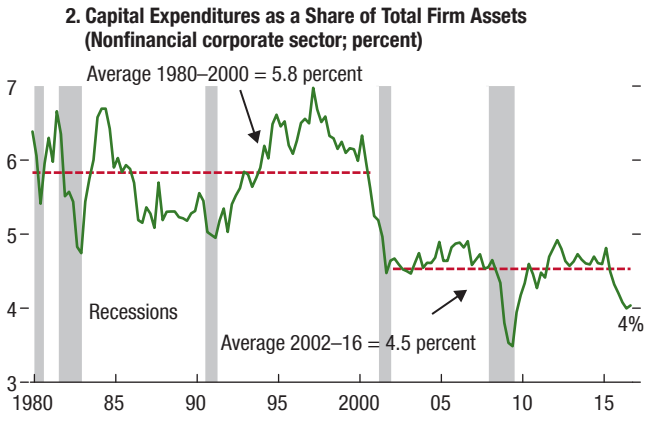
[2]Calculations assume (1) removal of the tax deductibility of interest on new debt—given that it will take some years for the policy to affect the whole stock of debt, it is approximated by taking half of the product of effective interest expenses and the statutory tax rate; and (2) full expensing of new capital expenditures, computed as an immediate tax gain on deductibility of new capital expenditures partly offset by lost tax gains on depreciation of these expenditures in later years.

Figure 1.6. United States: Business Confidence and Economic Risk Taking

Business optimism has spiked ...



... as policy signals favor a boost to capital expenditure.

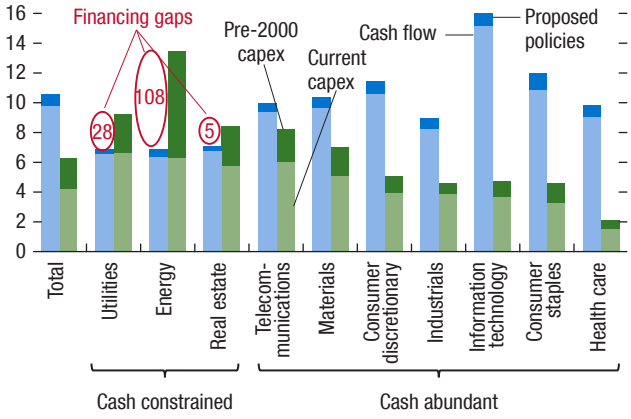


Sources: Federal Reserve; National Bureau of Economic Research; National Federation of Independent Business; and IMF staff estimates.
Note: Shaded areas indicate economic recessions.

Figure 1.7. Policy Stimulus and Corporate Balance Sheets

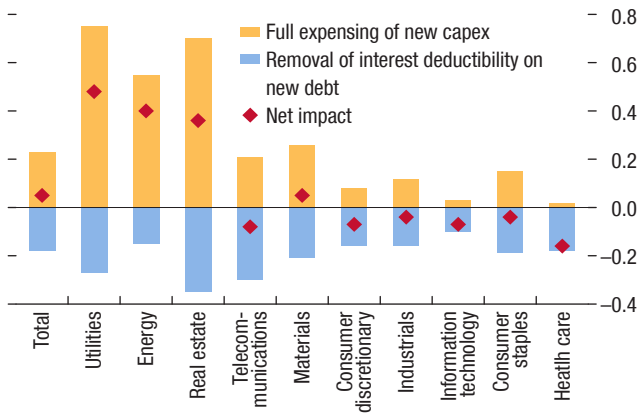
A tax cut of 10 percent could support higher investment but financing gaps remain.

1. Cash Flow versus Capital Expenditure for S&P 500 Firms, by Sector (Percent of assets)



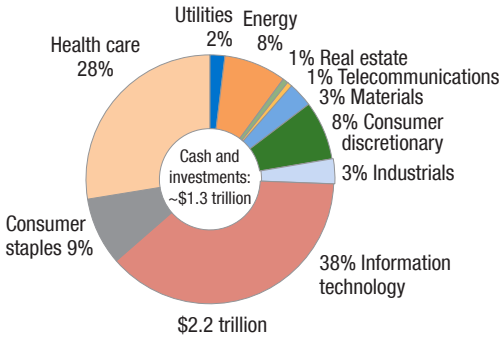
Additional tax measures may provide some benefit for capital intensive sectors.

2. Effects on Operating Cash Flows from Additional Tax Proposals on Deductibility and Expensing (Percent of assets)



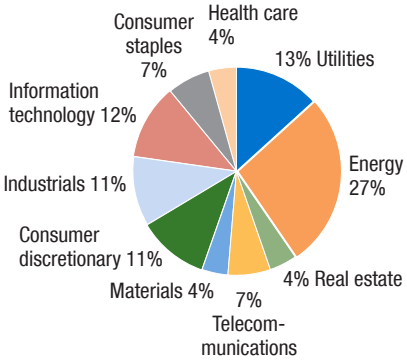
Cash windfalls from repatriation would likely accrue to cash abundant sectors.

3. Unrepatriated Income, by Sector (Total in U.S. dollars, sectoral shares in percent of total)



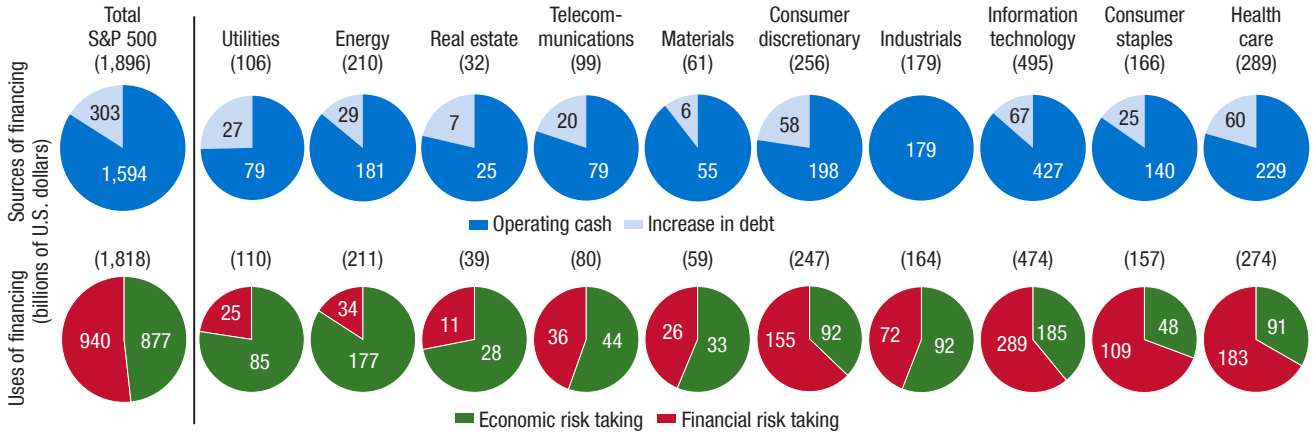
Three cash constrained sectors account for almost half of capital expenditure.

4. Capital Expenditures by S&P 500 Firms, by Sector (Share of total assets, 2012–16 average)



Debt has been used to finance both economic and financial risk taking.

5. Cash Flow Decomposition for S&P 500 Firms, by Sector (2012–16 average)



Sources: Bloomberg L.P.; S&P 500 company reports; Securities and Exchange Commission; and IMF staff estimates.
Note: See Figure 1.5 for more on the concepts underlying charts in panel 5. Capex = capital expenditures; S&P = Standard and Poor's.

While positive effects of tax stimulus on cash flow could be considerable, they would be insufficient for firms in a number of cash-constrained sectors to finance increased capital spending. These sectors—energy, utilities, and real estate—are particularly important as they have contributed to nearly half of overall capital spending among S&P 500 firms over the past few years (Figure 1.7, panel 4). The cash flow boost from a cut to the statutory tax rate may be insufficient to spur the nearly $140 billion needed to boost capital expenditure to the level prevailing before 2000 (Figure 1.7, panel 1). Adding in changes to tax treatments of interest expense and capital expenditures, along with repatriation, would attenuate—but likely not eliminate—financing needs for these sectors.

Perhaps more important, cash flow from tax reforms may accrue mainly to sectors that have engaged in substantial financial risk taking. Such risk taking is associated with intermittent large destabilizing swings in the financial system over the past few decades (Figure 1.11). It has averaged $940 billion a year over the past three years for S&P 500 firms, or more than half of free corporate cash flow (Figure 1.7, panel 5). At the sectoral level, such spending has been strongest in the health care and information technology sectors—where purchases of financial assets, mergers and acquisitions, and net payouts have been capturing more than half of free resources since 2012—amounting collectively to nearly $500 billion a year.

Where Are the U.S. Corporate Sector's Vulnerabilities?

The health of the corporate sector will be central not only to the economic effectiveness of fiscal policy reforms but also for financial stability (Figure 1.5). While U.S. corporate sector balance sheets are strong in aggregate, cash flow has tapered recently as corporate profits have come off peaks (Figure 1.8, panels 1 and 2).

The corporate sector has tended to favor debt financing, with $7.8 trillion in debt and other liabilities added since 2010 (Figure 1.8, panel 3). Bank lending to the corporate sector has continued to recover and could well rise further in response to more favorable market valuations (Figure 1.8, panel 4). In contrast, equity finance has traditionally been outstripped by share buybacks and has recently leveled off (Figure 1.8, panel 5). A drop in the cost of equity capital may stimulate equity financing, but it could coincide with higher corporate debt (Figure 1.8, panel 6)—particularly if additional share buybacks are financed through debt.

There has been a stronger reliance on debt financing as the credit cycle entered a mature phase. Corporate credit fundamentals have started to weaken (Figure 1.9, panel 1), creating conditions that have historically preceded a credit cycle downturn (Figure 1.9, panel 2). Asset quality—measured, for example, by the share of deals with weaker covenants—has deteriorated. At the same time, a rising share of rating downgrades suggests rising credit risks in a number of industries, including energy and related firms in the context of oil price adjustments and also in capital goods and health care.

Also consistent with this late stage in the credit cycle, corporate sector leverage has risen to elevated levels. Median net debt across S&P 500 firms—which collectively account for about one-third of the $36 trillion economy-wide corporate sector balance sheet—is close to a historic high of more than 1½ times earnings (Figure 1.9, panel 3). A look beyond the S&P 500, at a broader set of nearly 4,000 firms accounting for about half of the economy-wide corporate sector balance sheet, suggests a similar rise in leverage across almost all sectors to levels exceeding those prevailing just before the global financial crisis (Figure 1.9, panel 4). Leverage is uneven, though: the upward drift is limited by low debt in cash-rich sectors such as information technology, but debt is very high in the energy, real estate, and utilities sectors, ranging between four and six times earnings.

High Leverage Combined with Tighter Borrowing Conditions Could Affect Financial Stability

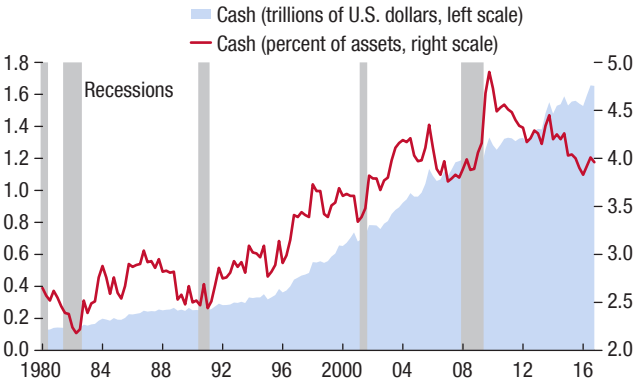
As leverage has risen, so too has the proportion of income devoted to debt servicing, notwithstanding low benchmark borrowing costs (Figure 1.10, panel 1). Although the absolute level of debt servicing as a proportion of income is low relative to what it was during the global financial crisis, the 4 percentage point rise has brought it to its highest level since 2010, which leaves firms vulnerable to tighter borrowing conditions. The average interest coverage ratio—a measure of the ability for current earnings to cover interest expenses—has fallen sharply over the past two years. Earnings have dropped to less than six times interest expense,

Figure 1.8. United States: Corporate Internal Funds and External Sources of Finance

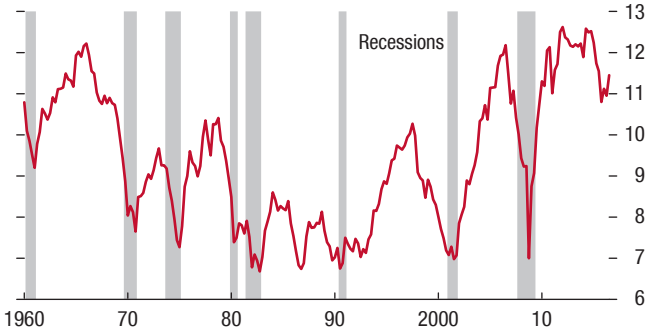
Corporate cash holdings are tapering ...

... as profits recede from a high level.

1. Corporate Cash Holdings on Balance Sheet



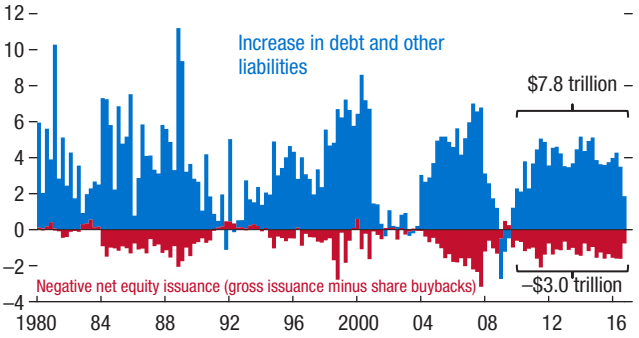
2. Corporate Profits (Percent of GDP)



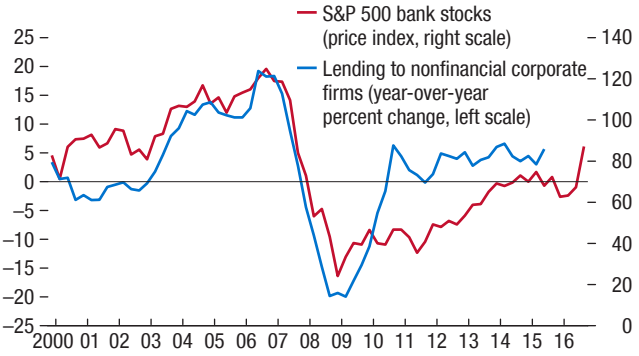
Net equity financing has been falling the past four decades, as debt finance has continued to rise.

A sharp improvement in bank equity valuations may portend stronger willingness to lend.

3. Corporate Liabilities and Net Equity Issuance (Percent of assets)



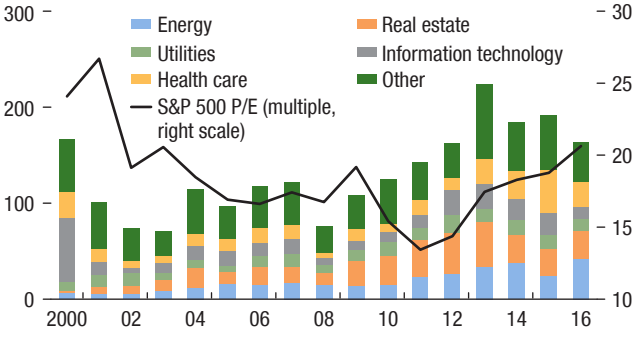
4. Bank Equities and Corporate Lending



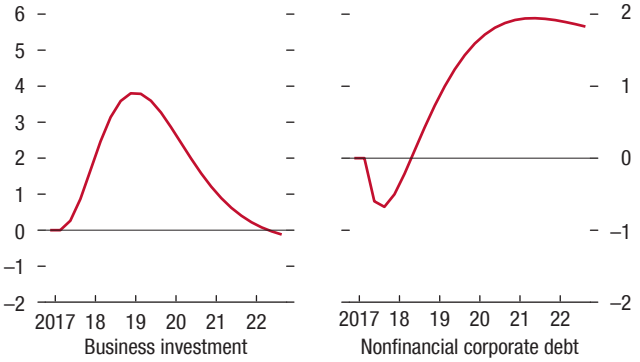
Gross equity issuance has abated, despite favorable valuations ...

... while a lower cost of equity capital could boost business investment (and, eventually, debt).

5. Corporate Sector Gross Equity Issuance (Billions of U.S. dollars, unless otherwise stated)



6. Illustrative Impacts of Improving Equity Sentiment (Percent deviation from baseline)

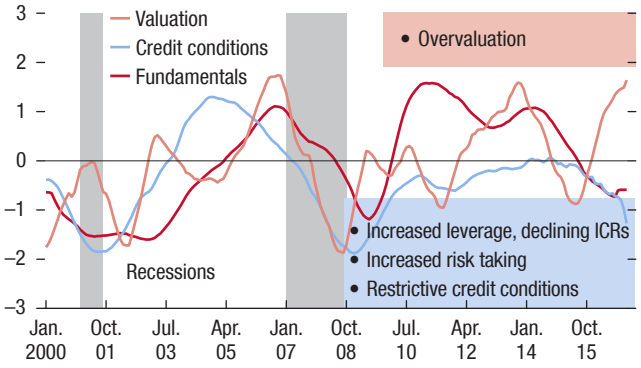


Sources: Bloomberg L.P.; Dealogic; Federal Reserve; Morgan Stanley Capital International; Standard and Poor's (S&P); Vitek 2017; and IMF staff estimates.
Note: In panel 4, the series for lending is lagged 12 months. Bank balance sheet improvements are modeled using an equivalent decrease in the share of bank capital devoted to lending, phased in over five years. Equity risk premium compression in panel 6 consists of a 10 percent increase in the real equity price, phased in over one year. Shaded areas represent economic recessions. P/E = price-to-earnings ratio.

Figure 1.9. Corporate Leverage and the Credit Cycle

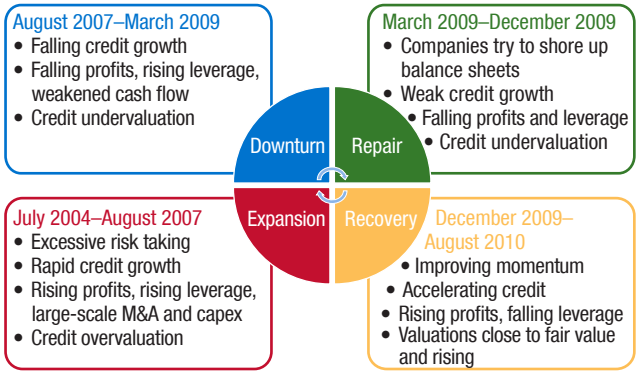
Deteriorating balance sheet fundamentals and credit conditions ...

1. Asset Valuations, Balance Sheet Fundamentals, and Credit Conditions (Unweighted average in percentile rank, normalized to zero)



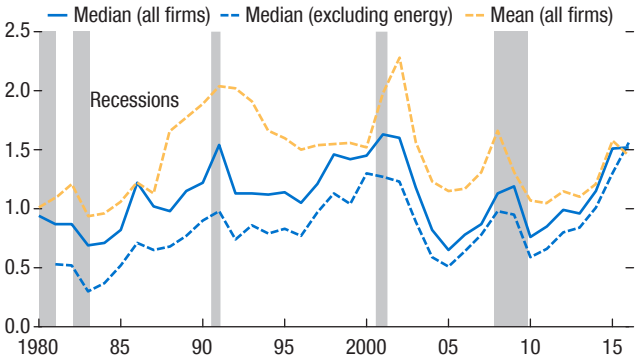
... signal a late stage of expansion in the credit cycle.

2. Stages of a Stylized Credit Cycle



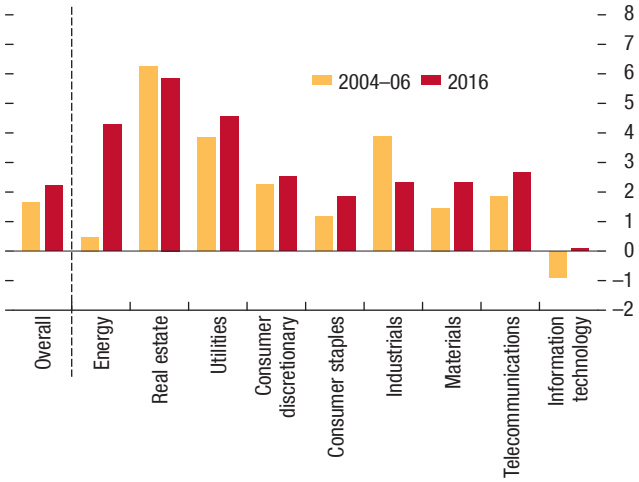
Median corporate leverage among big firms has grown steadily and is close to a historical peak.

3. Net Leverage of S&P 500 Companies (Ratio of net debt to EBITDA)



Eight out of ten sectors witness an increase in leverage across a broad set of firms.

4. Net Leverage by Sector (Ratio of net debt to EBITDA)

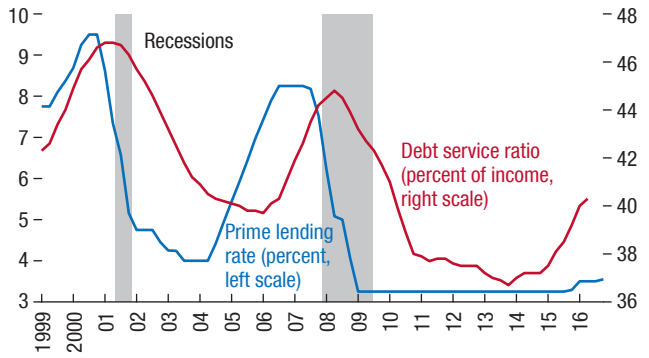


Sources: Bloomberg L.P.; National Bureau of Economic Research; S&P Capital IQ; Thomson Reuters Datastream; and IMF staff estimates.
Note: 2016 estimates refer to the first three quarters of the year, wherever full-year estimates are not available. Panel 1, Valuation = distress ratio, deviation in high-yield bond spreads from fair value. Fundamentals = capital expenditures, interest coverage, leverage, liquidity, profit margins. Credit conditions = bank credit, lending conditions, net bond issuance. Above zero represents an improvement in credit fundamentals (for example, high valuations, supportive credit conditions, rising profits, ample liquidity). Below zero represents a deterioration (for example, excessive risk taking, reduced access to credit, high leverage, diminishing profits, falling valuations) in fundamentals, credit conditions, and valuation. Shaded areas indicate economic recessions. Capex = capital expenditure; EBITDA = earnings before interest, taxes, depreciation, and amortization; ICR = interest coverage ratio; M&A = mergers and acquisitions; S&P = Standard & Poor's.

Figure 1.10. Debt Service, Interest Coverage Ratios, and Vulnerability to Higher Interest Rates

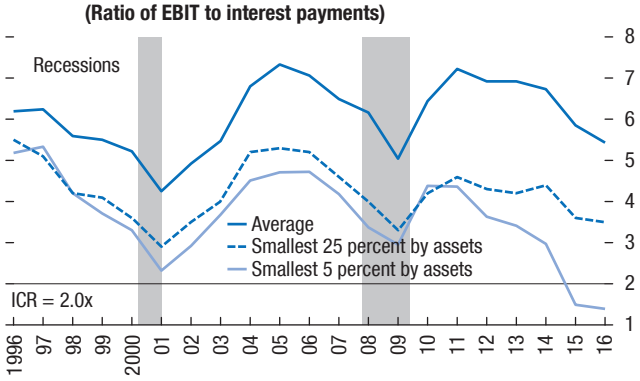
The debt service burden for the corporate sector as a whole has risen strikingly despite low rates.

1. Corporate Debt Service and Interest Rates



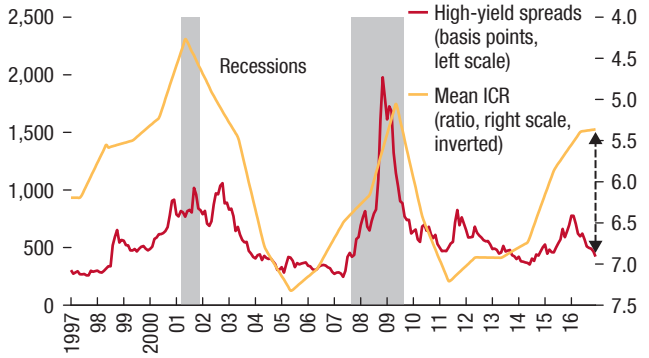
Interest coverage ratios have undergone a corresponding fall at the firm level, particularly for smaller companies.

2. Evolution of the Distribution of ICRs across Firms by Size (Ratio of EBIT to interest payments)



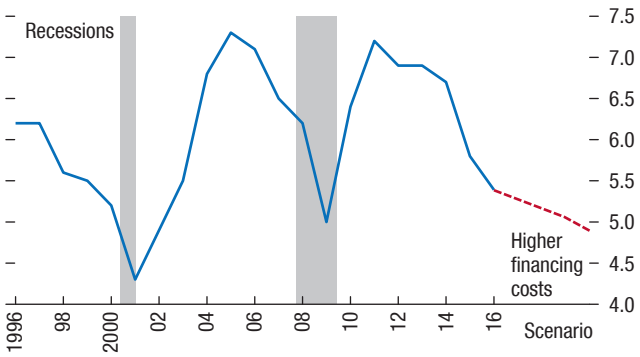
Market pricing of corporate risk has decoupled from the decline in interest coverage ratios.

3. High Yield Option-Adjusted Corporate Spread and Average Interest Coverage Ratios across Firms



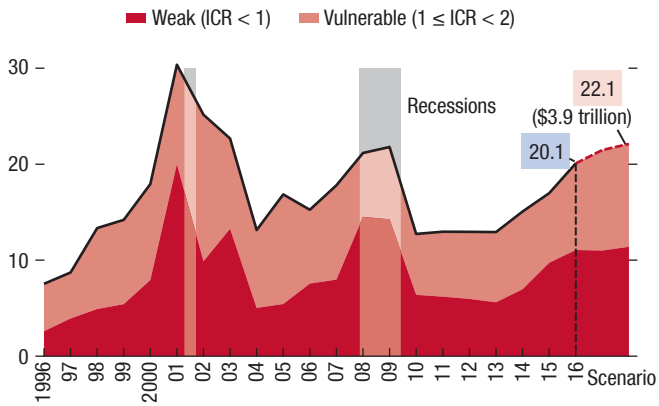
Higher financing costs could significantly weaken firms' interest coverage ratios ...

4. Average Interest Coverage Ratio (Ratio of EBIT to interest payments)



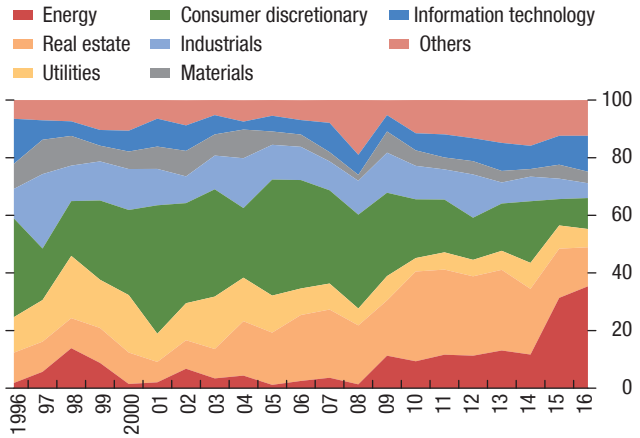
... resulting in a growing set of firms at risk of default.

5. Percentage of "Challenged" Firms (Percent of total assets)



The share of "challenged" firms has risen in the energy, real estate, and utilities sectors.

6. Evolution of "Challenged" Firms, by Sector (Share of total firms with ICR < 2)



Sources: Bank for International Settlements; Bloomberg L.P.; S&P Capital IQ; and IMF staff estimates.
Note: 2016 calculations reflect the first three quarters of the year, wherever full year estimates are not available. Shaded areas indicate economic recessions. EBIT = earnings before interest and taxes; ICR = interest coverage ratio.

close to the weakest multiple since the onset of the global financial crisis (Figure 1.10, panel 2). Historically, deterioration of the interest coverage ratio corresponds with eventual widening in credit spreads for risky corporate debt (Figure 1.10, panel 3). Declines in the interest coverage ratio have been concentrated mostly in smaller firms, which may have less access to capital market financing than their larger counterparts.

Under the adverse scenario in Scenario Box 1.1 of the WEO, an unproductive fiscal expansion could lead to a sharp rise in borrowing costs. Such a sharp rise in interest rates amid tepid earnings growth could further compromise the ability of firms to service their debt (Figure 1.10, panel 4).[3] Under this scenario, the combined assets of challenged firms could reach almost $4 trillion. The number of firms with very low interest coverage ratios—a common signal of distress—is already high: currently, firms accounting for 10 percent of corporate assets appear unable to meet interest expenses out of current earnings (Figure 1.10, panel 5). This figure doubles to 20 percent of corporate assets when considering firms that have slightly higher earnings cover for interest payments, and rises to 22 percent under the assumed interest rate rise.

The stark rise in the number of challenged firms has been mostly concentrated in the energy sector, partly as a result of oil price volatility over the past few years. But the proportion of challenged firms has broadened across such other industries as real estate and utilities. Together, these three industries currently account for about half of firms struggling to meet debt service obligations and higher borrowing costs (Figure 1.10, panel 6).

Policies Should Be Carefully Calibrated and Attuned to Stability Risks

Historical experience suggests that financial risk taking in the form of asset acquisition, mergers and acquisitions, and net payouts often follows tax policy changes (Figure 1.11). Tax cuts in the United States in the 1980s coincided with an increase in financial risk taking, abetted by a broad rollback of regulations. Similarly, a tax holiday for offshore unremitted profits in 2004, amid financial deregulation that started in the 1990s, was followed by a surge in financial risk taking. In general, increased financial risk taking is associated with pronounced leverage cycles that gradually build up and end abruptly in recessions, as for example in both 2001 and 2008.

Policymakers must balance the economic benefits of policy stimulus and tax reform against broader policy considerations and guard against financial stability risks. Authorities need to be vigilant to the increase in leverage and deteriorating credit quality. Tax measures now under discussion that reduce incentives for debt financing could help attenuate risks of a further buildup in leverage and may even encourage firms to unwind existing tax-advantaged debt. Existing leverage and a deterioration in interest coverage ratios may, nonetheless, still represent a risk. Tighter financial conditions could lead to distress for the weak tail of firms, with losses borne by banks, life insurers, mutual funds, pension funds, and overseas institutions.

To mitigate the financial stability risks, regulators should preemptively address any areas in which risk taking appears excessive. Additional financial prudential and supervisory action could be deployed should policy stimulus lead to an increase in debt-financed investment and a rise in medium-term corporate vulnerabilities, acknowledging lags and limits to scope.[4] The Comprehensive Capital Analysis and Review stress-testing exercise is already being used to identify where risks may have a meaningful impact on the balance sheets of systemic banks. A case can also be made for using stress testing to assess the risks to nonbank financial intermediary balance sheets from severe losses in nonfinancial corporate debt, taking into account likely associated liquidity strains and correlated risks in related sectors (such as commercial real estate).

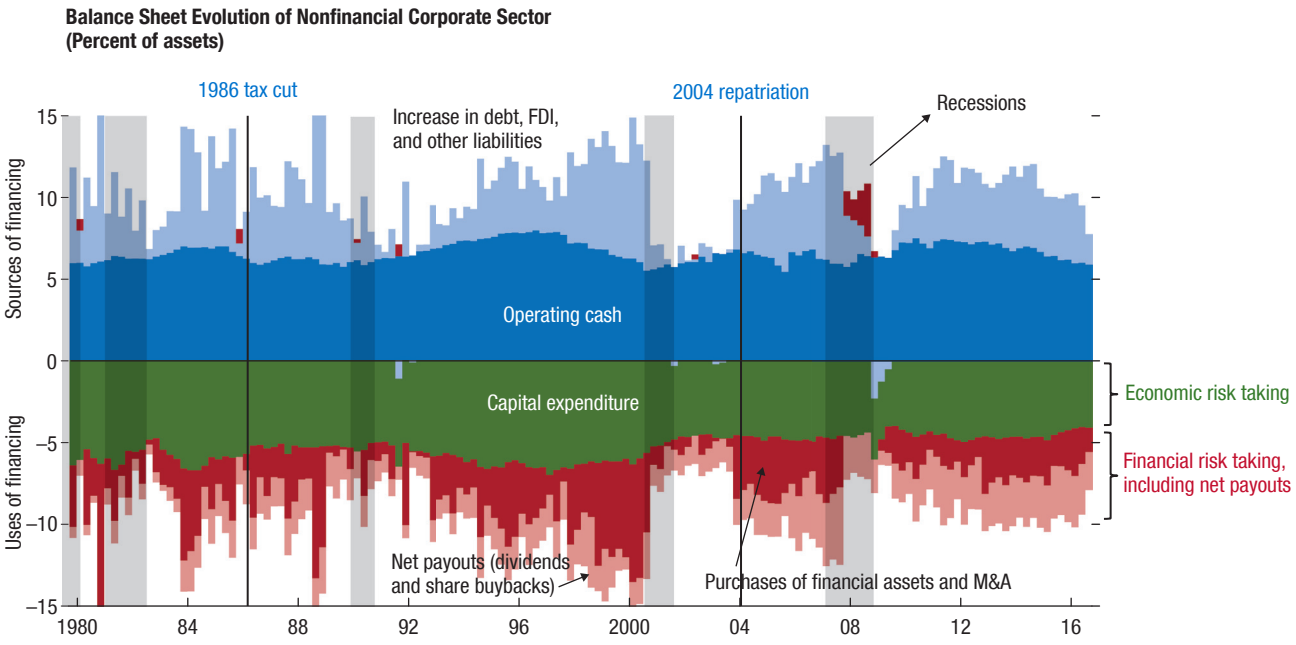
More generally, policymakers should resist efforts to weaken bank regulatory requirements that reduce resilience (Box 1.2). Although there is room to fine-tune existing regulations, policymakers should guard against wholesale dilution or backtracking on the important progress made in strengthening the

[3]Calculations capture partial sensitivity of the interest coverage ratio to an interest rate shock, based on a scenario with tighter financial conditions, assumed to pass through into higher effective interest rates based on an assumed loan maturity of five years. The number of firms considered in the analysis ranges from 1,800 to 4,000, depending on the availability of historical information from S&P Capital IQ data.

[4]For instance, after bank regulators instituted leverage caps in 2013, growth in leveraged lending eased, but more aggressive risk taking was evident in capital-market-based financing.

Figure 1.11. United States: A Retrospective on Economic versus Financial Risk Taking

Past corporate tax initiatives have been associated with a limited increase in economic risk taking.



Sources: Federal Reserve; and IMF staff estimates.
Note: Shaded areas indicate economic recessions. FDI = foreign direct investment; M&A = mergers and acquisitions.

resilience of the financial system, particularly at a time when balance sheet fundamentals are deteriorating for U.S. companies. The successful completion of the global regulatory reform agenda is vital to ensuring that the global financial system is safe and resilient and can continue to promote economic activity and growth.

Emerging Market Economies Face Trying Times in Global Markets

Emerging market economies have continued to enhance their resilience. Their macroeconomic outlook has improved due to stronger growth and lower corporate leverage, alongside prospects for positive growth spillovers from advanced economies. But overall financial stability risks remain elevated because political and policy uncertainty in advanced economies opens channels for negative spillovers. A sudden repricing of risk or a rise in protectionism could trigger capital outflows and hurt demand. This would exacerbate existing vulnerabilities in corporate sectors and raise risks in the weakest banking systems. To ensure resilience against an uncertain global policy mix, policymakers should continue to address corporate and bank vulnerabilities.

Emerging Market Economies: Resilience Tested

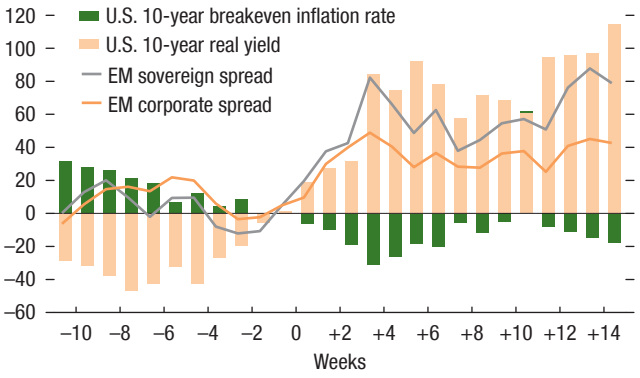
Faster Growth in Advanced Economies and Ongoing Adjustment in Emerging Market Economies Support Resilience

The world economy is gaining speed, boosting the appetite for risk, reinforcing the recovery in commodity prices, and supporting the rebound in emerging market economy asset prices. U.S. market interest rates have risen notably amid the improving outlook and expectations of fiscal stimulus and monetary tightening in the United States. The recent episode of rising rates has been marked by a combination of higher real yields and increased inflation compensation, portending stronger U.S. growth—in contrast to some previous periods of rising U.S. interest rates, such as during the 2013 taper tantrum. During that period, rising U.S. interest rates hit emerging market economies hard, particularly those with weak macroeconomic fundamentals (Figure 1.12, panels 1 and 2).

Figure 1.12. Emerging Market Economies: Asset Prices and Fundamentals

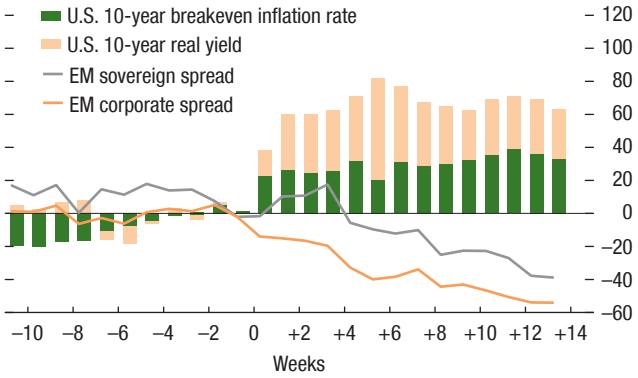
Emerging market assets were hurt during the taper tantrum in May 2013 as higher U.S. real yields did not signal higher U.S. growth.

1. U.S. Rates and Emerging Market Spreads
(Cumulative basis point change; May 22, 2013 = 0)



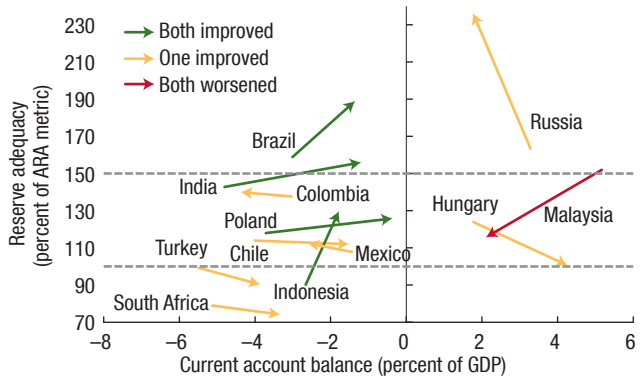
This time is different: a brighter U.S. outlook and reflation support the assets of emerging market economies.

2. U.S. Rates and Emerging Market Spreads
(Cumulative basis point change; Nov. 7, 2016 = 0)



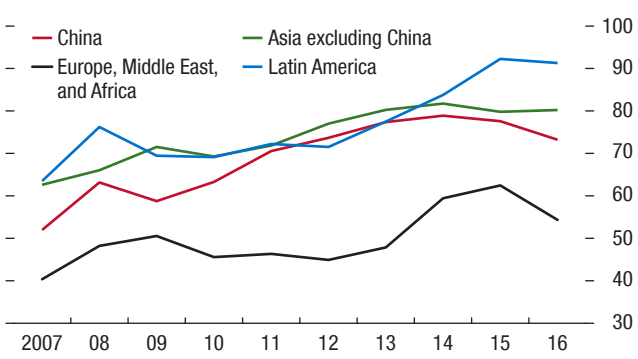
Emerging market external balances have improved since the taper tantrum, reinforcing positive financial market sentiment.

3. Current Account and Foreign Reserves Adequacy, Change 2012 to 2016



Emerging market corporate leverage has moderated but still remains elevated, especially in Latin America.

4. Emerging Market Economy Corporate Leverage, 2007–16
(Debt to equity, percent)



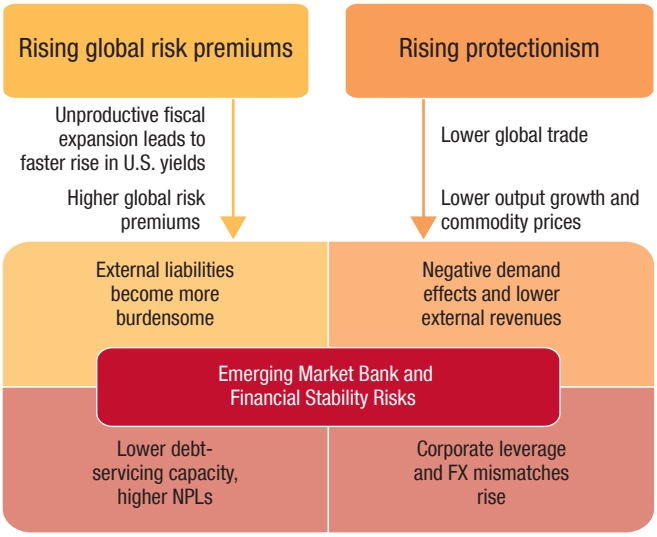
Sources: Bloomberg L.P.; Haver Analytics; IMF, World Economic Outlook database; JPMorgan Chase & Co.; S&P Capital IQ; and IMF staff calculations.
Note: ARA = Assessing Reserve Adequacy; EM = emerging market.

Since the taper tantrum in 2013, many emerging market economies have reduced external imbalances and strengthened policy buffers (Figure 1.12, panel 3). Furthermore, credit booms have begun to wane. At the same time, corporate leverage has started to decline, but remains elevated (Figure 1.12, panel 4). These developments have enhanced the resilience of emerging market economies, while their overall growth is projected to rise from 4.1 percent in 2016 to 4.5 percent in 2017. This increase is driven mainly by gains in commodity exporters, while a number of countries still face more challenging growth prospects (see the April 2017 WEO).

Political and Policy Uncertainty in Advanced Economies Opens Channels for Negative Spillovers

What would happen if current market optimism suddenly turned to pessimism because of concerns that U.S. policies could deliver a less benign path for growth and debt than expected? Financial markets would deliver faster normalization of the U.S. term premium, leading to higher worldwide term premiums (see Scenario Box 1.1 in the April 2017 WEO). As a result, emerging market economies could face rising risk premiums, increased asset price volatility, capital outflow pressures, a stronger U.S. dollar, and balance

Figure 1.13. Transmission of External Risks to Emerging Market Economies



Source: IMF staff.
Note: FX = foreign exchange; NPLs = nonperforming loans.

sheet stresses (Figure 1.13). Countries that are more sensitive to external financial conditions—including from large external financing needs, high corporate foreign-currency indebtedness, or a large foreign presence in local bond markets—would be most at risk, as would frontier market economy borrowers.

And what would happen if there were a shift toward protectionism in a number of countries? Emerging market economies with high trade openness would face rising risk premiums amid declining global trade and commodity prices (Figure 1.13). In turn, corporate earnings would suffer, especially for firms dependent on exports, placing strains on companies with high leverage and banking systems with weaker asset quality.

Rising Global Risk Premiums

If increases in U.S. interest rates push up global risk premiums and interest rates across emerging market economies, borrowing costs would increase for countries with external weaknesses or significant foreign exchange exposures. Emerging market currencies would come under pressure as capital flows reverse, limiting space for monetary policy to ease and keeping long-term interest rates high. Such an environment would reduce firms' debt-servicing capacity and could prompt institutional investors to undertake a more forceful and sustained shift away from emerging market economies, undermining a vital source of external financing (Figure 1.14, panels 1 and 2).

Such an outcome could also amplify asset price volatility induced by retail investors. Until recently, capital flow reversals were driven mainly by herd behavior on the part of retail investors, while continued buying by institutional investors helped offset some of the downward pressure on emerging market economy asset prices (Figure 1.14, panel 3). However, inflows from institutional investors have declined in recent quarters. The period following the U.S. election in November 2016 marked the first notable retrenchment by these investors since the global financial crisis (though flows rebounded in early 2017). Moreover, disruptions could stem from portfolio reallocations by large, opportunistic investment funds. For example, multisector bond funds have sizable holdings in many emerging markets, and a sharp unwinding of their positions could severely affect funding and liquidity conditions in some emerging market economies (Figure 1.14, panel 4).[5]

In a scenario of rising global risk premiums, the weak tail of emerging market economy firms would increase to over 16 percent of total nonfinancial corporate debt, which is an increase of $135 billion (Figure 1.15).[6,7] This would exceed the 15 percent peak in 2015 when the collapse in commodity prices hit corporate balance sheets. Brazil, China, and India experience the greatest impact in this scenario given their sensitivities to changes in earnings and corporate interest rates. A sustained reversal of capital inflows would put pressure on countries with high external financing requirements and/or low reserve adequacy (Table 1.1).

[5]For example, in 2016 the multisector bond funds of a single asset manager reduced their combined emerging market bond exposure by $15 billion. Almost $11 billion of that total was concentrated in a single country. This represented an estimated 13 percent of that country's total sovereign local and hard currency bonds.

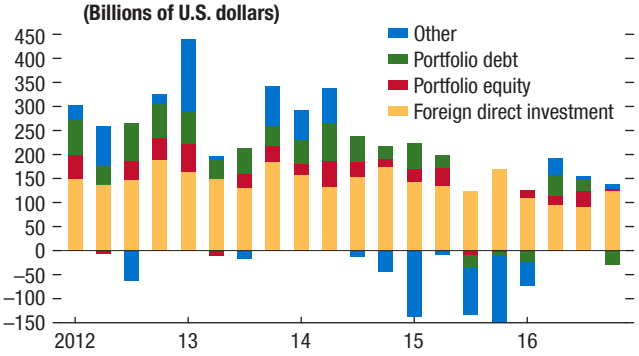
[6]The weak tail is defined as the proportion of all nonfinancial corporate debt that is issued by firms with interest coverage ratios less than 1; the interest coverage ratio is earnings before interest, tax, depreciation, and amortization (EBITDA) divided by interest expense.

[7]Corporate EBITDA is adjusted using the expected changes in a country's GDP output from the IMF's G20 model (G20MOD). Earnings changes are calculated using the historical relationship between a sector's earnings and the growth in the economy. Earnings of commodity-related firms are adjusted based on the model's expected change in commodity prices in the given shocks. Interest expenses are adjusted by the change in the corporate interest rate output from the model. Interest expenses are also adjusted using the expected change in the exchange rate, based on the proportion of a given country's nonfinancial corporate debt that is denominated in foreign currency.

Figure 1.14. Capital Flows to Emerging Market Economies

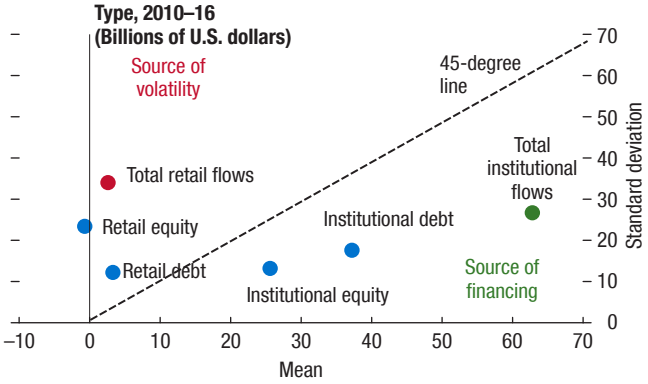
Capital flows to emerging market economies have been subdued in recent years.

1. Nonresident Capital Flows to Emerging Market Economies (Billions of U.S. dollars)



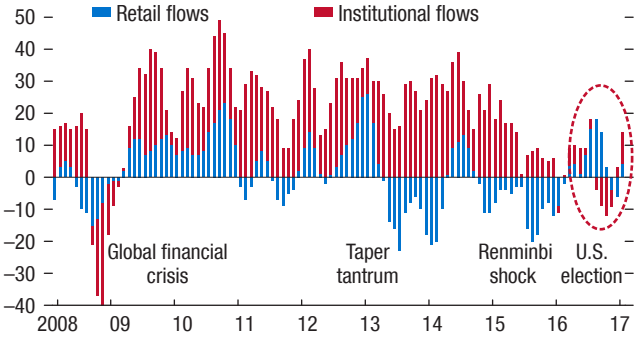
Retail investors represent a small source of financing but are a large source of volatility.

2. Emerging Market Quarterly Portfolio Flows by Investor Type, 2010–16 (Billions of U.S. dollars)



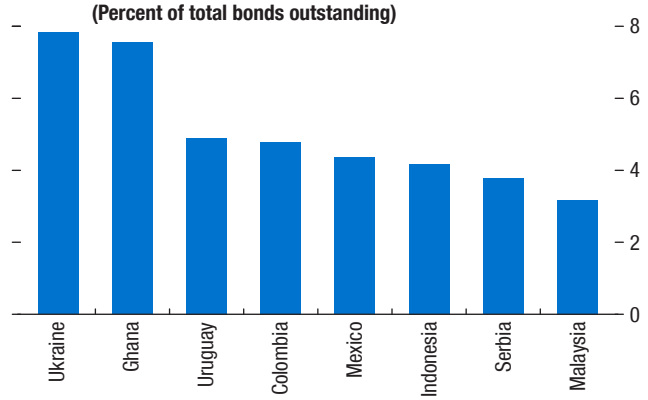
Most capital flow reversals are driven by retail investors.

3. Emerging Market Portfolio Flows by Investor Type (Billions of U.S. dollars, three-month moving average)



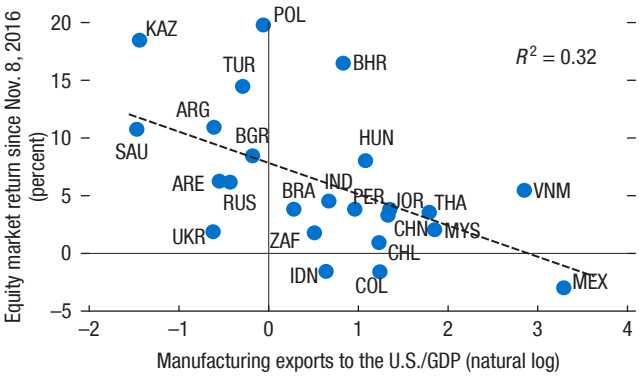
Individual fund families often own large portions of emerging market bonds in selected markets.

4. Concentration of Foreign Emerging Market Bond Holdings of Largest Fund Family Owner (Percent of total bonds outstanding)



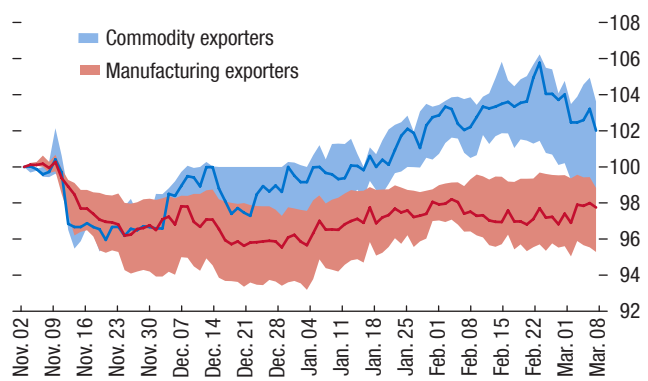
Equities of manufacturing exporters with high U.S. trade exposure have not performed as well as other emerging market equities ...

5. Emerging Market Equity Returns versus Gross Manufacturing Exports



... while currencies of manufacturing exporters have underperformed those of commodity exporters.

6. Emerging Market Exchange Rates (Median and 25th–75th percentiles, Index 100 = Nov. 1, 2016)

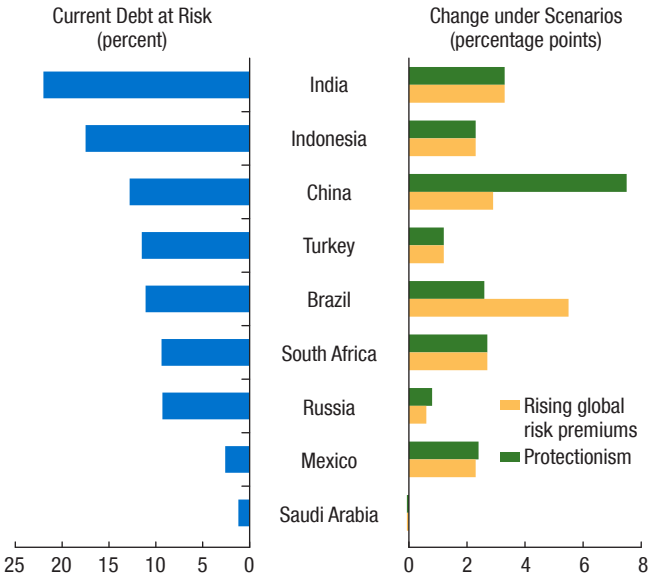


Sources: Bloomberg L.P.; EPFR Global; Institute of International Finance (IIF); UN Comtrade; and IMF staff calculations.
Note: Panels 2 and 3 show proxies for portfolio flows by institutional and retail investors, which are estimated using IIF portfolio flows data and EPFR data on flows into investment funds dedicated to emerging markets. IIF data capture flows by all types of investors, but fund flows are predominantly driven by retail investors. In panel 2, standard deviations are calculated as the average eight-quarter rolling standard deviation over the 2010–16 period. The country sample for IIF data encompasses 25 emerging market economies (used in panels 1, 2, and 3), while the country sample for EPFR data encompasses about 85 emerging and developing economies (used in panels 2 and 3). Other differences between the two datasets are discussed in Koepke and Mohammed 2014. In panel 5, data labels in the figure use International Organization for Standardization (ISO) country codes. In panel 6, commodity exporting countries include Brazil, Chile, Colombia, Indonesia, Kazakhstan, Malaysia, Peru, Russia, and South Africa. Manufacturing exporting countries include Bulgaria, China, Hungary, India, Malaysia, Mexico, Poland, Taiwan Province of China, Thailand, and Vietnam. EM = emerging market; FDI = foreign direct investment.

Figure 1.15. Emerging Market Corporate Debt under Rising Risk Premiums and Protectionism

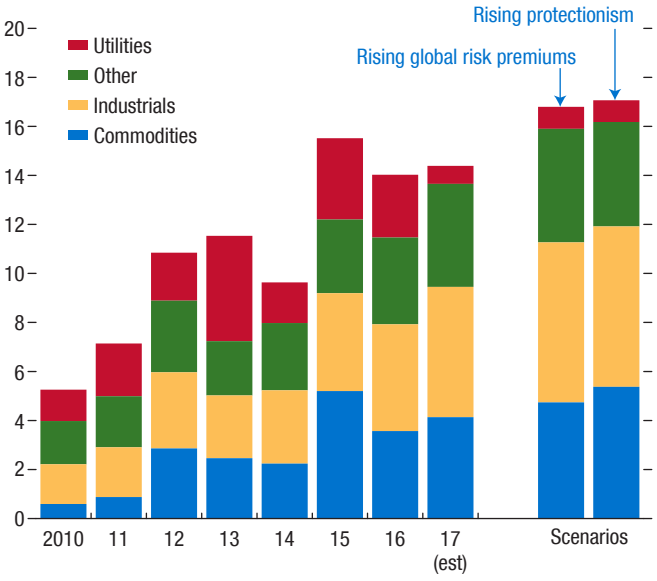
Emerging market economies would see an increase in the size of the weak tail of their corporate sectors.

1. Corporate Debt with Interest Coverage Ratio < 1



The weak tail of corporate debt rises significantly in a scenario of rising global risk premiums and rising protectionism.

2. Emerging Market Corporate Debt with Interest Coverage Ratio < 1 (Percent of total nonfinancial corporate debt)



Sources: S&P Capital IQ; and IMF staff estimates.
Note: Current represents last 12 months, except for India, which uses fiscal year 2016 data. Est = estimate.

Rising Protectionism

If protectionist pressures increase and start to affect global trade, emerging market economies closely integrated into global trade and capital markets will face lower external revenues and rising risk premiums.[8] The combination of declining global trade and growth would increase corporate vulnerability, especially for those with high leverage and large foreign exchange mismatches. The resulting higher corporate risk premiums and borrowing costs will increase financial stability risks in these economies.

Both direct and indirect transmission channels would come into play in such an environment, including through disruptions to principal trading partners. For example, manufacturing exports account for some 25 percent of Mexico's GDP, and 80 percent of all its goods exports are bound for the United States (Table 1.1). Some emerging market economies in Asia (for example, Malaysia, Thailand, and Vietnam) have high manufacturing exports as a share of GDP.[9] Similarly, a decline in Chinese exports would not only weaken China's growth and add to domestic vulnerabilities: it would also weigh on demand for imported intermediate and capital goods.

This would further affect exporters in Asia, as well as commodity exporters. The broader negative repercussions for emerging market economies underscore the potential for rising domestic vulnerability in China to drive higher global risk premiums.

Emerging market economy asset prices reflect some of these trade exposure risks. Equities in countries with substantial manufacturing exports to the United States (Mexico, Vietnam), or that form a part of major supply chains (Chile, Malaysia), have underperformed other emerging markets (Figure 1.14, panel 5). Commodity exporters' currencies have notably outperformed those of manufacturing exporters in recent months (Figure 1.14, panel 6). This performance likely reflects the boost from rising commodity prices, but it may also indicate less market concerns that protectionism would affect trade in commodities.

[8]Under rising protectionism, global tariff and nontariff barriers raise the effective cost of imports by 10 percent.

[9]Trade exposures of emerging market economies that are part of the European Union (Hungary, Poland, Romania) would be less affected given the improbability of intra-EU trade barriers.

Table 1.1. Emerging Market Economies: External and Trade Vulnerabilities

	Credit Spreads				External								Trade				
	Sovereign Credit Spread	Corporate Credit Spread	Sovereign Credit Spread	Corporate Credit Spread	Reserves		Current Account Balance		Total External Financing Requirement		Nonresident Holdings of Local Currency Government Bonds		Trade Openness	Goods Trade Balance with United States	Goods Trade Balance with China	Net Manufacturing Exports	Net Commodity Exports
	(*z*-score, five-year sample)		(basis points)		(percent of ARA metric)		(percent of GDP)		(percent of GDP)		(percent of total)		(percent of GDP)				
			Δ since October 2016		2016	Δ since 2012	2017E	Δ since 2012	2017E	Δ since 2012	2016:Q2	Δ since 2013:Q1	2016	2016	2016	2015	2015
Brazil	0.0	–0.4	–62	–179	190	31	–1.3	1.7	9	2	16	2	23	–0.1	0.6	–1.9	4.2
Chile	–0.9	–2.1	–47	–51	112	–2	–1.4	2.6	14	–6	3	–3	56	–0.7	1.2	–7.0	8.8
China	–1.3	–1.6	–8	–19	171	–82	1.3	–1.2	5	–2	3	3	37	2.3		10.0	–3.4
Colombia	–0.1	–0.7	–28	–91	140	2	–3.6	–0.6	13	4	22	13	34	–1.2	–2.3	–9.3	5.1
Hungary	–1.2	–1.7	–17	–57	100	–24	3.7	1.9	14	–22	21	–20	173	1.0	–3.5	11.4	–1.8
India	–1.1	–1.5	–10	–30	156	13	–1.5	3.3	10	–3	4	2	42	0.9	–2.3	0.0	–3.7
Indonesia	–1.5	–2.4	–39	–126	131	41	–1.9	0.8	7	0	39	7	35	0.9	–2.0	–1.7	3.8
Malaysia	–0.5	–1.4	–52	–9	115	–37	1.8	–3.4	40	6	34	3	128	2.0	–4.3	4.1	5.6
Mexico	0.6	–0.9	–39	–55	113	5	–2.5	–1.0	13	5	34	–3	78	10.7	–6.5	1.5	0.0
Peru	–0.7	–1.4	–8	–62	311	5	–1.9	0.9	8	0	33	–23	44	–0.6	0.1	–9.0	6.0
Philippines	–1.1	–2.0	–4	–43	227	–29	–0.1	–2.9	6	2	8	–6	58	0.5	–3.4	1.1	–3.2
Poland	–0.9		–6		126	8	–1.7	2.0	21	–11	34	–2	101	0.2	–2.9	3.6	–0.2
Russia	–1.1	–1.4	–58	–91	238	74	3.3	0.0	7	4	23	1	46	–0.1	–0.9	–4.1	16.3
Saudi Arabia					590	–114	1.5	–20.9	7	25			62	–0.7	0.1	–15.8	20.3
South Africa	0.2	–1.6	–22	–34	74	–5	–3.4	1.7	18	4	35	–3	61	0.1	–2.6	–2.3	1.7
Thailand		–1.5		–10	220	–5	9.7	10.1	7	–8	14	–3	124	3.0	–4.6	3.8	–0.3
Turkey	0.8	–0.2	–9	–43	90	–9	–4.7	0.8	31	9	18	–6	47	–0.5	–2.7	–1.4	–1.4
United Arab Emirates		–1.3		–43			3.5	–16.3					169	–4.3	–3.1	–14.1	10.6
Vietnam	–1.0		–19		70	–7	4.1	–1.9	4	3			182	13.1	–10.0	5.7	0.7
Median	–0.9	–1.4	–20	–47	136	–4	–1.3	0.8	9	2	22	–2	58	0.2	–2.6	–1.4	1.7

Sources: Sovereign investor base estimates by Arslanalp and Tsuda (2014, updated); Bloomberg L.P.; IMF, World Economic Outlook database; JPMorgan Chase & Co.; UN Comtrade; and IMF staff calculations.
Note: The UN Comtrade data on net exports comprise commodity codes 0 through 4 for commodities and codes 6 through 8 for manufacturing, using Revision 3 or 4. For details on the reserve adequacy metric (ARA), see IMF 2015d. E = estimate.

Table 1.2. Asset Quality and Capital Indicators for a Sample of Emerging Market Banks
(Data based on bank-reported financial statements; 2016 or latest available)

Country	Number of Banks	Tier 1 Capital Ratio (percent of RWA)		NPL and Problem Loan Ratio (percent of gross loans)	NPLs and Problem Loans over Buffers (percent)	Banks with Provision Needs in Excess of Profits (percent of assets)	Provision Needs Divided by Profits: Weakest Quartile (multiples)	Share of Banks with Tier 1 Ratio below 10 Percent	
		Sample	FSI					Current (percent of assets)	After Provisions (percent of assets)
			(1)	(2)	(3)	(4)	(5)	(6)	(7)
India	64	10.6	10.6	11.3	79	73	> 3	43	77
Russia	24	11.6	8.8	15.6	76	43	> 3	21	49
South Africa	8	12.8	14.2	7.1	51	22	1.4	0	74
Brazil	22	12.9	13.1	9.5	48	20	0.9	20	21
Poland	14	14.8	15.7	7.6	44	16	1.4	2	7
Indonesia	32	19.5	20.6	8.0	36	12	1.7	1	7
Mexico	12	14.9	13.2	2.5	13	4	0.9	0	5
Thailand	12	14.1	14.8	6.5	34	3	0.9	0	3
Turkey	15	12.1	13.2	6.6	36	2	0.4	13	14
China	42	11.0	11.1	4.8	30	1	0.4	45	45
United Arab Emirates	22	17.1	16.9	6.6	26	1	0.6	0	0
Malaysia	12	14.2	14.4	3.7	27	0	0.7	0	0
Colombia	3	8.4	11.9	7.1	55	0	0.4	100	100
Saudi Arabia	12	17.6	16.8	3.0	12	0	0.2	0	0

Sources: SNL Financial; IMF Financial Soundness Indicators (FSI); and IMF staff calculations.

Note: Indicators are based on GFSR sample data, unless otherwise indicated. The data are based on publicly available consolidated statements of a sample of domestic banks incorporated in their home country, and may differ from supervisory and the IMF's system-wide Financial Soundness Indicator data because of the sample coverage, consolidation basis, or treatment of foreign banks. The sample covers at least three-quarters of system assets in most countries, except for Mexico where the sample covers 30 percent of system assets because of a large presence of foreign banks that are excluded from this analysis. NPL = nonperforming loan; RWA = risk-weighted assets.

(1) Data are from the IMF's system-wide Financial Soundness Indicators data set.

(2) NPLs are those reported by banks and may differ from supervisory approaches. Supervisory definitions vary across countries. Problem loans are reported as doubtful by banks and are valid leading indicators of NPLs. Problem loans are defined as the prevailing category among special-mention loans, restructured but not impaired loans, 30 days or more past due but not impaired loans, and potential problem loans. Individual banks usually report one or two of these categories depending on their jurisdiction.

(3) NPLs and problem loans as a percent of Tier 1 capital and total (specific and general) loan loss provisions.

(4) Percentage of bank assets with provisioning needs greater than average annual net income, calculated as the three-year average return on assets multiplied by 2016 assets.

(5) Aggregate provisioning needs divided by average annual net income for the 25 percent of bank assets with the largest provisioning needs relative to assets.

(6) Percentage of bank assets with Tier 1 capital ratio of less than 10 percent based on 2016 or latest reporting results.

(7) Percentage of bank assets with Tier 1 capital ratio of less than 10 percent after provisioning needs are subtracted from equity.

In a scenario of rising protectionism, the size of the weak tail of firms would increase to 17 percent of total nonfinancial corporate debt, an increase of $235 billion, which is somewhat higher than under the case of rising global risk premiums (Figure 1.15, panel 1). The greatest deterioration in corporate balance sheets would occur in China, India, and South Africa. Commodity sectors especially would come under pressure because metal and oil prices would fall as a result of the sharp decline in global growth.

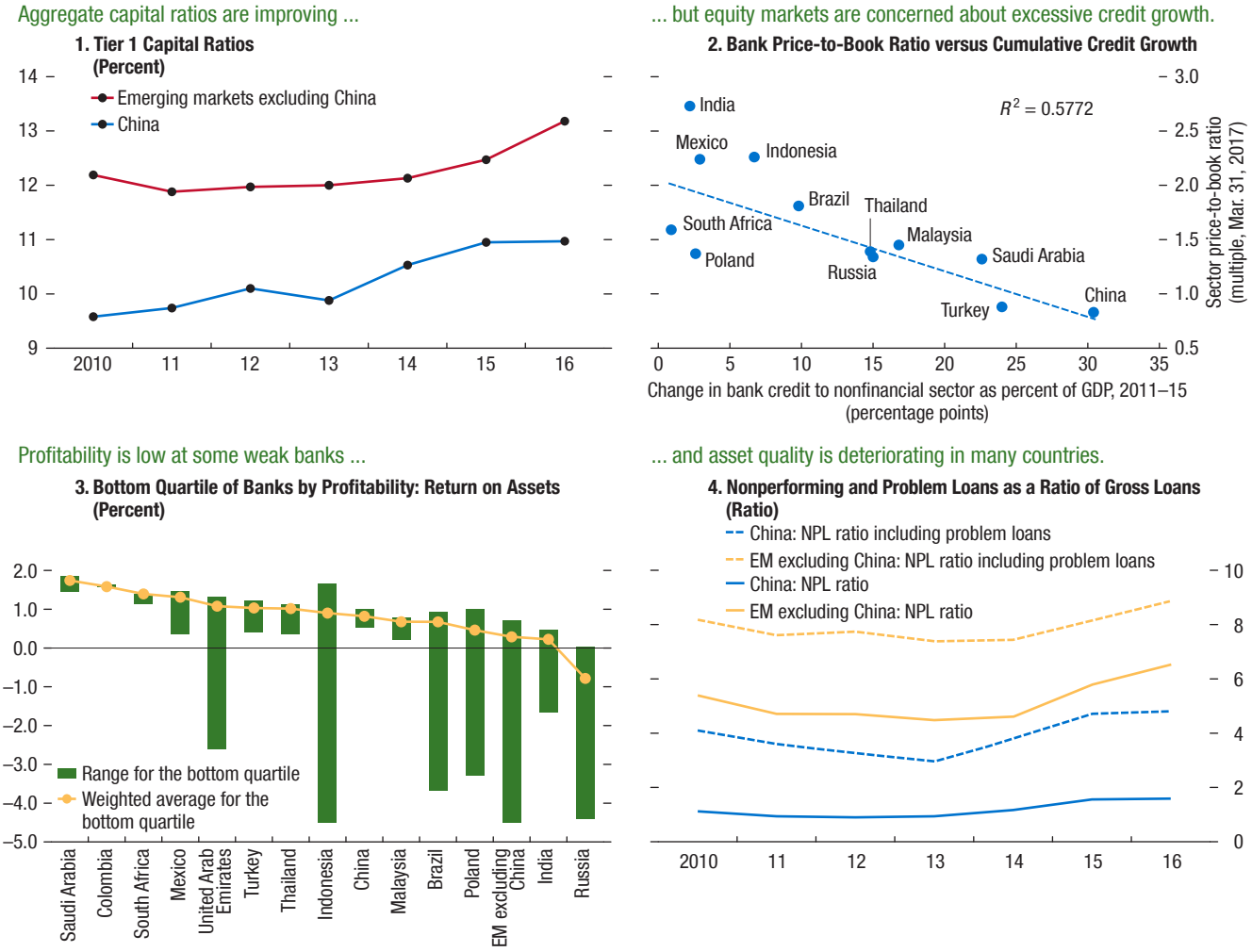
Are Emerging Market Banks' Capital Buffers Sufficient to Absorb Increased Corporate Stress?

Stronger external headwinds from tighter global financial conditions or increased trade protectionism could worsen corporate vulnerabilities in some emerging market economies and spill over to the banking system. This underscores the importance of ensuring the health of emerging market banking systems through swift and transparent recognition of nonperforming assets and by strengthening capital buffers.

On the positive side, bank capital ratios have been rising steadily over the past several years, with a sample of about 300 emerging market banks showing aggregate Tier 1 capital ratios now at comfortable levels (Table 1.2; Figure 1.16, panel 1).[10] Shrinking risk weightings have been a contributing factor, particularly

[10]Banking sector data in the remainder of this section are based on a 294-bank sample covering banks from 14 countries with $32 trillion in assets. Bank-level data are used instead of official Financial Soundness Indicator (FSI) data because they offer better granularity and allow for cross-sectional analysis.

Figure 1.16. Emerging Market Bank Capital and Asset Quality



Sources: Bank for International Settlements; Bloomberg L.P.; Morgan Stanley Capital International; SNL Financial; and IMF staff calculations.
Note: EM = emerging market; NPL = nonperforming loan.

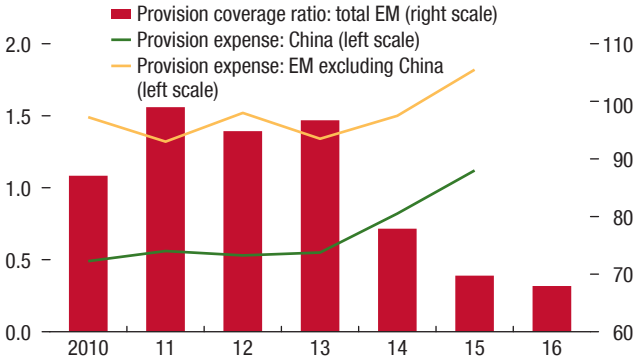
in Brazil, but banks in most markets have also actively reduced leverage. Lenders outside China have increased capital by 20 percent since the end of 2014, compared with 15 percent growth in assets over the same period, reflecting a combination of public recapitalization and banks' efforts in response to increased regulatory and market scrutiny. Nonetheless, asset quality concerns have not been fully addressed after several years of rapid growth in lending. Bank equity valuations are relatively weak in China and Turkey, where credit has grown rapidly relative to GDP (Figure 1.16, panel 2).

Although the profitability of banks in emerging market economies is generally strong—in particular compared with that in the United States and Europe—heavy credit losses continue to erode profits at many banks, notably in Russia and India (Figure 1.16, panel 3). Furthermore, nonperforming and problem loans have climbed in many countries, reflecting various challenges: economic weakness (Brazil, Russia), continued corporate leverage growth (China), and sector-specific downturns (India) (Figure 1.16, panel 4). Banks have raised provisioning levels in response, but not quickly enough to keep pace with bad loan formation (Figure 1.17, panel 1). As a result, the weak tail of banks with poor loss coverage (nonperforming and problem loans as a proportion of bank buffers)

Figure 1.17. Underprovisioning in the Weak Tail of Banks

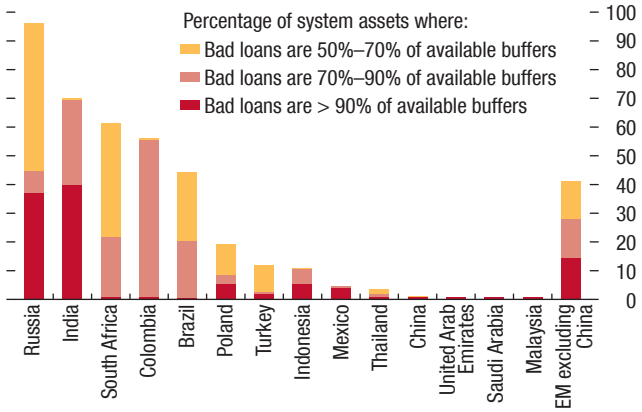
Provisioning has risen but not fast enough, as banks strain to maintain coverage ratios.

1. Provision Expense-to-Gross Loan Ratio and Problem Loan Provision Coverage Ratio (Percent)



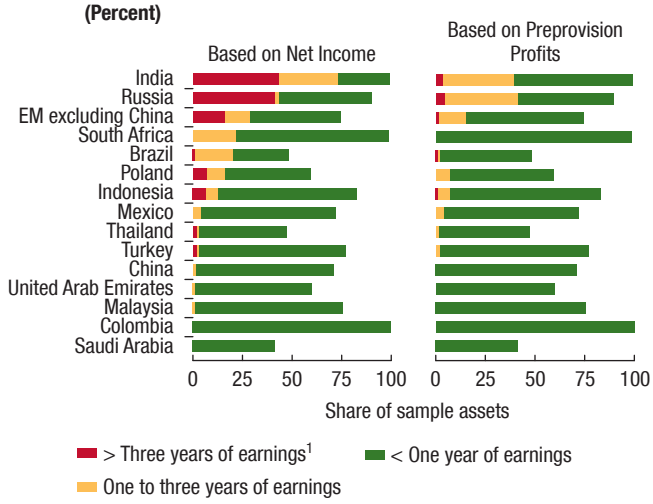
As a result, there is a large weak tail of banks with a high ratio of bad loans to buffers.

2. Percentage of Assets by the Ratio of Nonperforming and Problem Loans over Tier 1 Capital and Loan Loss Provisions, 2016



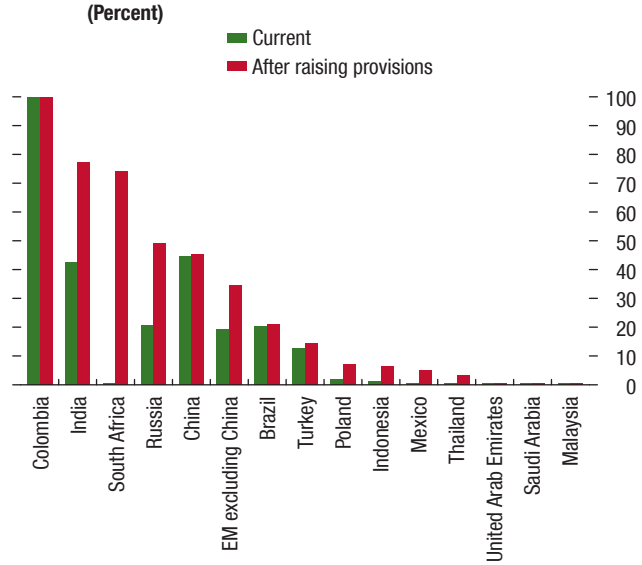
Provision needs exceed annual profits in 30 percent of emerging market banks outside China.

3. Number of Years to Absorb Additional Provisions through Earnings, by Share of Assets (Percent)



If provisions were deducted from equity, weak banks would jump up to 35 percent of assets.

4. Percentage of Assets with Tier 1 Ratio below 10 Percent (Percent)



Sources: SNL Financial; and IMF staff calculations.
Note: In panel 3, earnings are based on three-year averages. EM = emerging market.
[1] Banks with losses are included in this category.

has swelled in emerging market economies (excluding China) to about 40 percent of sample assets (Figure 1.17, panel 2).

Further Deterioration in Asset Quality Would Erode Capital Levels for Several Banks

Restoring provisioning coverage among the weakest banks is important to ensure the banking system has resilience to withstand further asset quality deterioration. In an illustrative exercise to assess the potential extent of underprovisioning of weaker banks, banks' provision coverage ratios are raised to at least 50 percent of nonperforming and problem loans, or to their country's average provision-to-loan ratio.[11] This exercise generates some $120 billion (5 percent of capital) in additional provisions, which would have to be fulfilled through retained earnings, existing capital, or new equity. More profitable banking systems such as those in Colombia and Indonesia would be well positioned to absorb such costs; however, for about 30 percent of emerging market bank assets (outside of China), additional provisions would exceed average annual net income (Figure 1.17, panel 3).[12] In more than a third of the banking systems in India and Russia, provisioning needs would amount to at least three years of net income, unless profits recover from cyclical lows. To account for cyclical weaknesses in some countries, which may reduce net income, provision needs can be compared with preprovision profits.[13] Based on this approach, some banks in India and Russia would still require more than one year of earnings to boost provisioning. If the provisioning needs were fulfilled with equity, the share of banks with Tier 1 capital ratios below 10 percent, excluding China, would jump from about 20 percent to 35 percent of total assets (Figure 1.17, panel 4). Many large banks could raise capital by tapping the equity market given generally favorable valuations.

[11]Problem loans are those reported by banks and are valid leading indicators of nonperforming loans. Problem loans are usually not defined by supervisors, but certain categories, such as restructured loans, receive increasing supervisory attention. Differences in coverage ratios may be driven by differences in reliance on collateral, so a coverage ratio of less than 50 percent of nonperforming and problem loans does not necessarily imply underprovisioning.

[12]Three-year average profits are used for the calculation, reflecting the current cyclical position of a country.

[13]For example, retained earnings may be reduced by higher provisions because of asset quality deterioration or more aggressive provisioning. The use of preprovision profits as a comparator assumes that banks do not need to set aside additional provisions for new nonperforming loans.

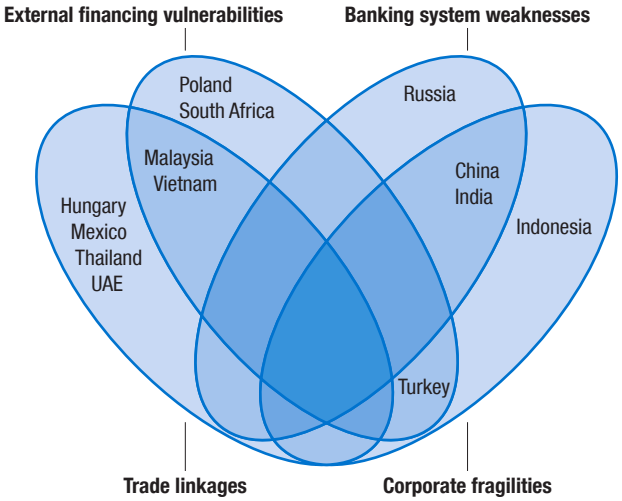
More Forceful Policy Action Is Needed to Ensure Resilience of Emerging Market Economies

Emerging market economies have become more resilient, benefiting from a recovery in global commodity prices and still-supportive external conditions. However, the preceding analysis highlights that these economies face challenges along several channels (Figure 1.18). Those reliant on trade openness (Hungary, Malaysia, Thailand, Vietnam, United Arab Emirates) or with large external financing needs (Malaysia, Poland) or low reserve adequacy (South Africa, Vietnam), or a combination (Turkey), would be challenged by tighter global financial conditions and unfavorable trade developments. Others, challenged in the corporate sector (China, India, Indonesia, Turkey) or banking sector (China, India, Russia), could face more broad-based risks.

Risks of an abrupt tightening in financial conditions and increased protectionism pose new challenges for policymakers. Therefore, policymakers should continue to address corporate and bank vulnerabilities to ensure resilience against an increasingly uncertain global environment.

- *Restoring the health of corporate balance sheets:* Authorities should prioritize improving corporate debt-restructuring mechanisms, including formal insolvency frameworks and out-of-court debt restructuring. Policymakers should develop an in-depth understanding of both the sources and composition of credit extended to nonfinancial firms and proactively monitor corporate vulnerability. Authorities should continue to monitor firms' foreign exchange exposure, and the extent to which foreign-currency debt is hedged, either naturally (through foreign exchange income) or through financial instruments. Moreover, authorities should stand ready to provide additional foreign exchange hedging tools to help firms absorb sharp currency movements without causing financial distress (as undertaken in Brazil and Mexico in recent years).
- *Strengthening the health of the banking system:* Bank supervisors in countries whose banks are characterized by weak balance sheets or have expanded rapidly should carry out comprehensive asset quality assessments to gauge the extent of unrecognized credit losses. These assessments should be followed

Figure 1.18. Emerging Market Economy Challenges



Source: IMF staff.
Note: Elevated risks for each category are defined as follows: Trade linkages = countries that rank in the top quartile among all countries for either trade openness or exports to the United States and the United Kingdom. Corporate fragilities = countries whose percentage of debt issued by firms with an interest coverage ratio below 1 rank in the top quartile of countries in Table 1.1. External financing vulnerabilities = countries with reserves as a percent of ARA metric below 100 percent in 2016 or projected external financing requirements above 15 percent of GDP in 2017, as shown in Table 1.1. Banking sectors = countries with Tier 1 capital ratios below 11.5, using Financial Soundness Indicators data as shown in Table 1.2. ARA = Assessing Reserve Adequacy; UAE = United Arab Emirates.

by concrete steps to cover the losses and—where applicable—ensuing capital needs. Capital needs should be tackled promptly while global financial conditions are favorable. This should be achieved preferably through private channels, including equity issuance and bail-ins. Public support should be used as a last resort, when issues are systemic and fiscal space is sufficient. In addition, bank regulators should monitor limits on foreign exchange open positions and assess the offsetting effect of foreign exchange hedging.

China: Rising Risks and Financial Vulnerabilities

While credit booms are waning in many emerging markets, credit continues to grow at a rapid pace in China (Figure 1.19, panel 1). Despite stabilization of the near-term growth outlook, policy efforts to contain leverage and financial risks remain constrained by the authorities' long-term growth objective: doubling the average income and size of China's economy by 2020. Achieving this requires ever increasing amounts of credit. Banks continue to play a major role in the provision of credit—total assets of China's banks are now more than triple the size of its GDP—with the fastest expansion from city commercial, joint-stock, and other smaller banks (Figure 1.19, panels 3 and 4). At the same time, other nonbank financial institutions have raised their credit exposure and leverage with the help of short-term wholesale funding, raising counterparty concerns, while the issuance of corporate bonds surged throughout 2016.

A large credit overhang has built up (the Bank for International Settlements calculates that the credit gap now stands at about 25 percent), and there is evidence that credit booms of this size are often dangerous (Figure 1.19, panel 2).[14] The likelihood of a financial crisis rises the longer a boom lasts and the larger it grows, especially if exchange rate flexibility is very limited (see IMF 2012).

Capital account pressures remain significant, with outflows picking up again in the second half of 2016, although they moderated substantially in the first two months of 2017. The People's Bank of China has continued foreign exchange interventions to maintain broad exchange rate stability (Figure 1.20, panels 1 and 2). Foreign asset purchases by Chinese residents account for most of the recent outflows, and Chinese firms have increased their investments in foreign companies abroad since late 2015. But foreign direct investment by overseas firms in China has also declined markedly over the past few quarters. Narrowing interest rate differentials and market expectations of bilateral depreciation versus the U.S. dollar have added to capital outflow pressures.

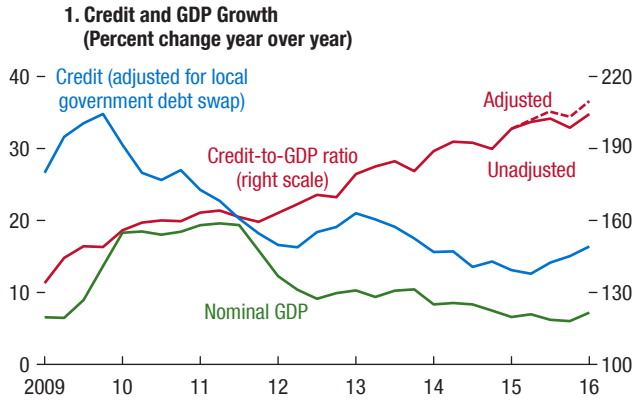
The Chinese authorities have continued to adjust policies to address rising vulnerabilities from rapid credit growth. In late 2016 they tightened monetary conditions. But the market turbulence that followed illustrates the risks that remain in China's increasingly large, opaque, and interconnected financial system.

- Tighter liquidity conditions in interbank and repo markets pushed up repo rates (Figure 1.21, panel 1), causing losses for financial institutions investing in bond market vehicles (Figure 1.21, panel 2). This caused leveraged investors to sell bonds, pushing up bond yields sharply (Figure 1.21, panel 3).

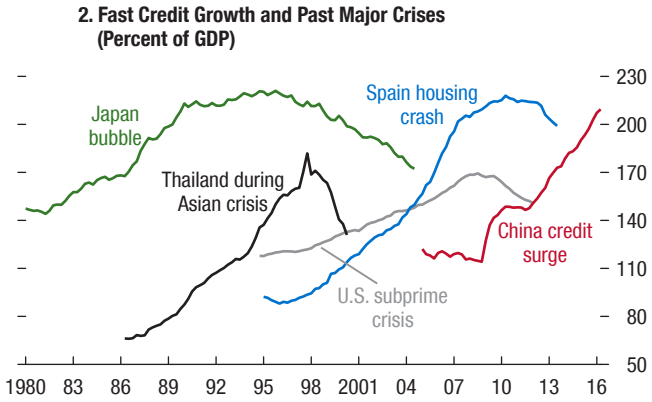
[14]A comprehensive discussion of China's credit boom and debt problem is provided by Maliszewski and others (2016).

Figure 1.19. China: Credit and Bank Balance Sheets

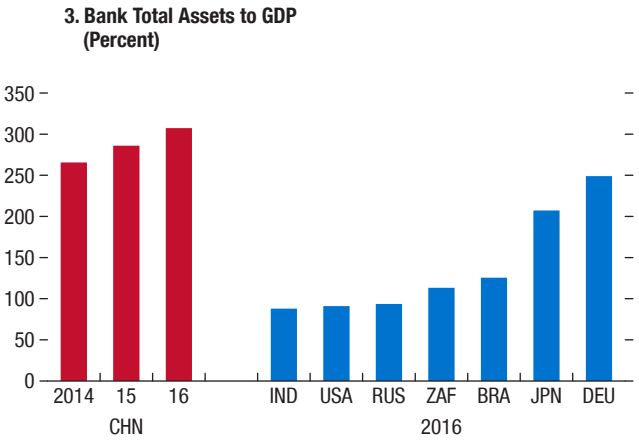
China's credit continues to rise faster than GDP ...



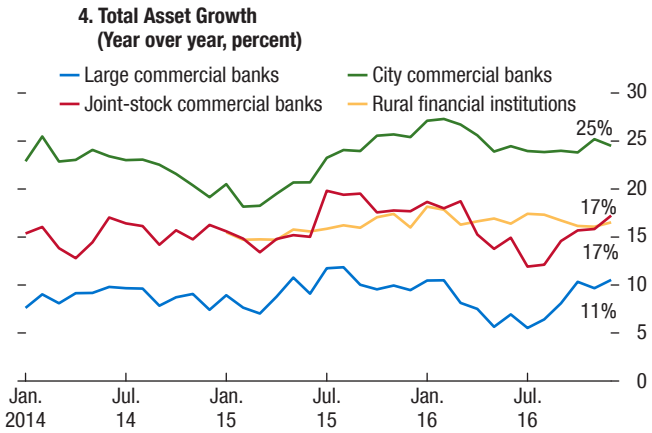
... and signals financial crisis risk, as suggested by international experience.



Chinese banks are now among the largest in the world, also relative to the size of the economy ...



... and smaller city commercial and joint-stock banks are still growing rapidly.



Sources: Bank for International Settlements; CEIC; Haver Analytics; IMF, World Economic Outlook database; and IMF staff calculations.
Note: Data labels use International Organization for Standardization (ISO) country codes. In panel 1, credit is total social financing stock (mainly private sector credit).

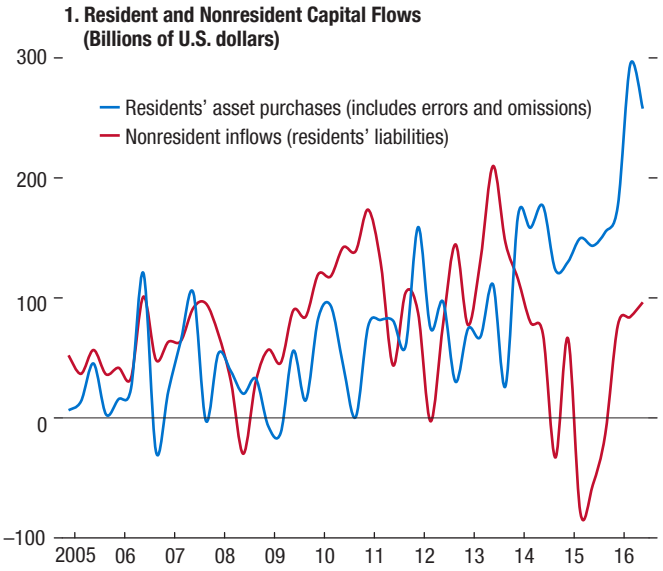
- Falling bond prices, rising global interest rates, and surging repo rates combined to cause distress in the informal repo market called the "entrusted bond market." This led to increased counterparty concerns in this largely unregulated market characterized by weak documentation standards, and segments of the repo market started to freeze up in mid-December (Figure 1.21, panel 1).
- To avoid systemic stress, the People's Bank of China instructed several large, state-owned banks to provide broad-based liquidity support through so-called X-repurchase agreements (whose counterparties are anonymous), in some cases to institutions that do not have access to the central bank's lending facilities, which calmed the markets and helped reduce yields in bond markets.

This episode highlights a number of pressure points that remain in the financial system:

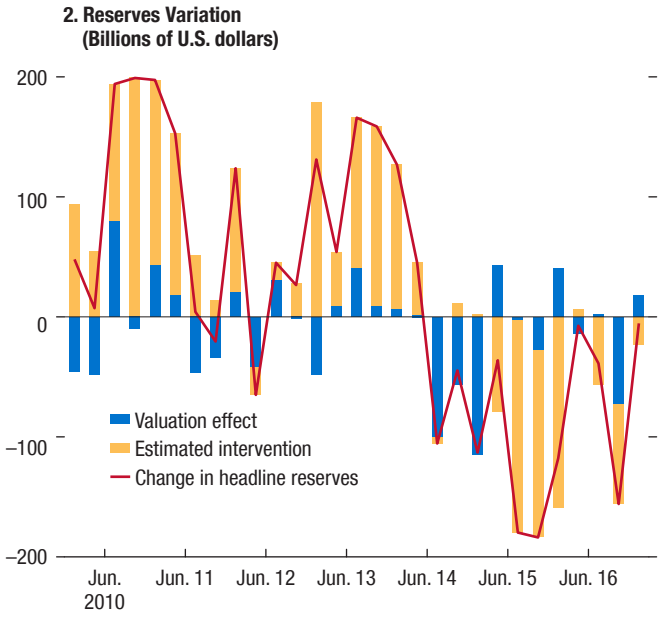
- *Many financial institutions continue to be overly dependent on wholesale financing with sizable asset-liability mismatches.* As emphasized in the October 2016 GFSR, the very short-term nature of China's repo funding implies that borrowers must roll over their liabilities on average almost daily, whereas funded credit products have much longer maturities. This maturity mismatch makes borrowers highly vulnerable to a sudden liquidity crunch, as evidenced in December.

Figure 1.20. China: Capital Flows and Foreign Exchange Reserves

Foreign asset purchases by Chinese residents have driven the recent pressure on capital outflows ...



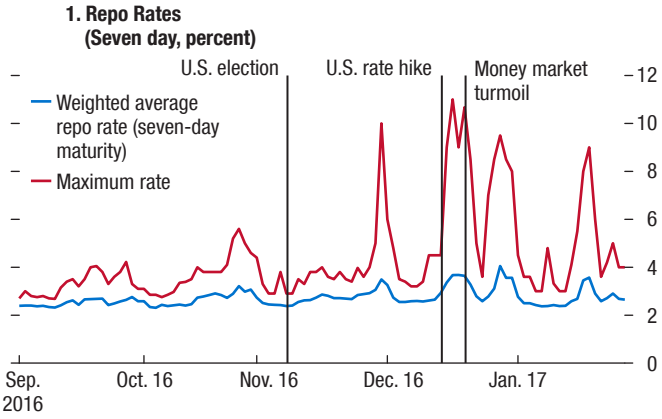
... triggering substantial foreign exchange interventions by the People's Bank of China to stabilize the exchange rate.



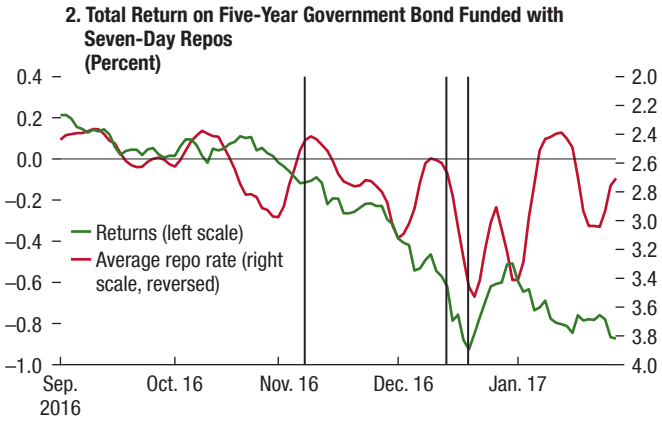
Sources: CEIC; People's Bank of China; State Administration of Foreign Exchange; and IMF staff estimates.

Figure 1.21. Recent Turmoil in Chinese Financial Markets

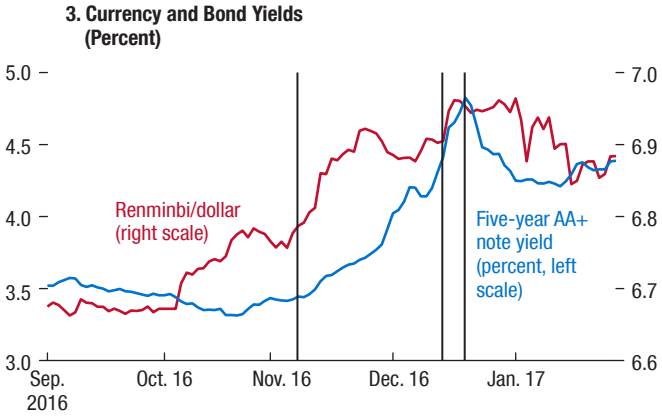
Tighter liquidity conditions pushed up repo rates, which surged in December for riskier institutions.



As repo rates rose, bond market vehicles incurred losses ...



... and corporate bond yields rose sharply with global yields as the U.S. dollar gained.



Sources: CEIC; IMF, Financial Soundness Indicators database, World Economic Outlook database; People's Bank of China; and IMF staff estimates.
Note: Repo = repurchase agreement.

- *Liquidity and credit risks are sizable, amid increased reliance on bond issuance and elevated redemption needs.* Low interest rates, a relaxation of bond issuance requirements, and expectations of a stronger U.S. dollar triggered a surge in issuance beginning early in 2015. China now accounts for more than two-thirds of total emerging market bond issuance and a third of U.S. dollar issuance, and maturities are shortening.
- *Investor composition has grown increasingly complex.* Banks continue to be the largest bond holders, but wealth management products and securities firms also have significant exposure and, in some cases, are highly leveraged to boost returns. Moreover, leverage is often established through informal markets with limited documentation and transparency.

The difficult task of deleveraging the system is thus as crucial and urgent as ever. This is increasingly recognized by the authorities, who have started a host of new regulatory initiatives to close loopholes for regulatory arbitrage, rein in leverage, and increase transparency of nonbank financial institutions and wealth management products. As discussed in previous GFSR reports, proactive recognition of losses, combined with restructuring of overly indebted but viable firms, is needed. Supervisory attention should concentrate on banks' emerging risks, especially fast asset growth among the small unlisted local banks, increasing reliance on wholesale funding, risks packaged into shadow products, and possible contagion through the interbank market.

But staving off further bouts of market instability—and ultimately, macro instability—requires addressing the policy tension between maintaining a high level of growth and the need for deleveraging. To the extent that credit growth remains excessive, the underpricing of credit risks remains an endemic characteristic of the financial system, and the search for yield remains a driving motivation, leverage will continue to build, and financial risks will continue to grow.

European Banking Systems: Addressing Structural Challenges

Considerable progress has been made in the European banking sector over the past few years. Banks have higher levels of capital, regulations have been strengthened, supervision has been enhanced, and efforts continue to adapt business models. More recently, bank equity prices have gained as a result of investor optimism about a cyclical upturn in the economy. However, a cyclical recovery alone is unlikely to fully restore the profitability of persistently weak banks, and more needs to be done to improve resilience. A number of system-wide structural features are compounding profitability challenges for domestic banks and may be affecting some international institutions. One structural challenge is overbanking, the features of which vary from country to country. Although measures are being taken to address concerns, countries with the biggest challenges need to make more progress. Until these structural impediments have been fully addressed, business model restructuring alone may not yield sufficient profitability. Left unresolved, the combination of weak banks, lack of access to private capital, and large bad debt burdens impedes the scope for recovery and could reignite systemic risks.

Sustainable Profitability Remains Elusive for Many Banks

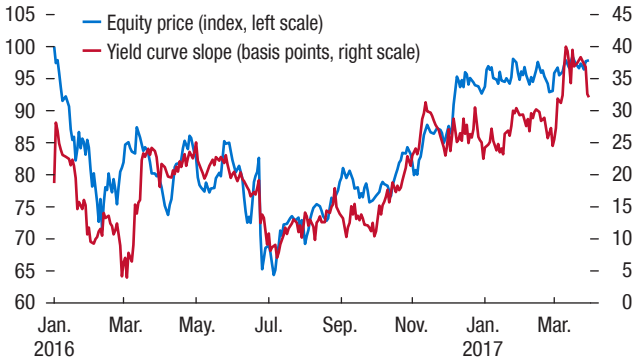
There has been substantial progress in the European banking sector. Bank capital ratios have been raised, and banks have recently recapitalized in Italy and Portugal. Banks now make less use of short-term wholesale funding. Regulations continue to be strengthened and supervision has been enhanced. Steps are being taken to address the burden of nonperforming loans. Efforts continue to be made to adapt business models, and there has been some consolidation within the banking sector in a number of countries.

At the same time, the long-awaited cyclical recovery is gathering momentum. European bank equity prices have increased, rising by about 40 percent on average since mid-2016 (Figure 1.22, panel 1). Bank profits should be helped by the steepening in yield curves, which has relieved some of the building pressures on bank net interest margins in a low rate environment (see Chapter 2). Earnings should also be buoyed by the strengthening economic outlook as provisions fall and lending grows. Despite this improvement, market valuations (price-to-book ratios) continue to reflect concerns about the ability of European banks to generate sustainable profits (Figure 1.22, panel 2). Indeed, in a large sample of European banks, the 2016 return on equity was weak

Figure 1.22. Banking Sector Market Valuations and Return Performance

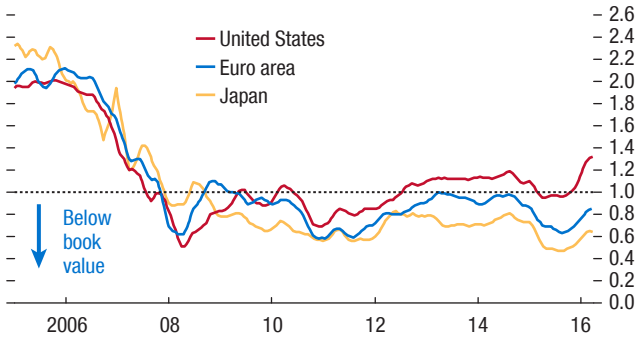
Bank equity prices have increased ...

1. European Bank Equity Prices and the Slope of the Yield Curve



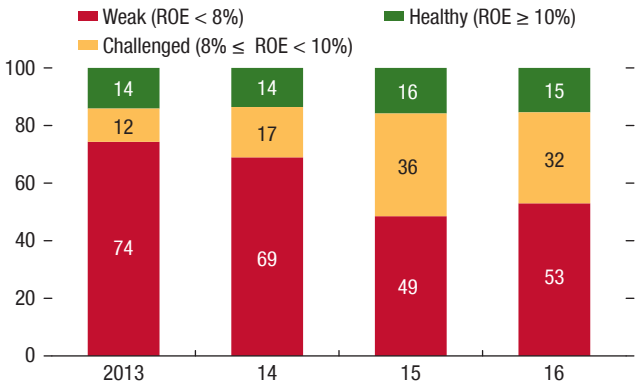
... but European equity valuations remain low.

2. Bank Price-to-Book Ratios (Multiple)



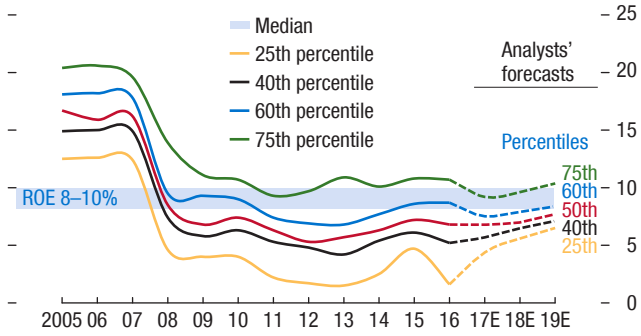
A significant proportion of banks have weak profits ...

3. European Banks, by Return on Equity Thresholds over Time (Percent of sample, by assets)



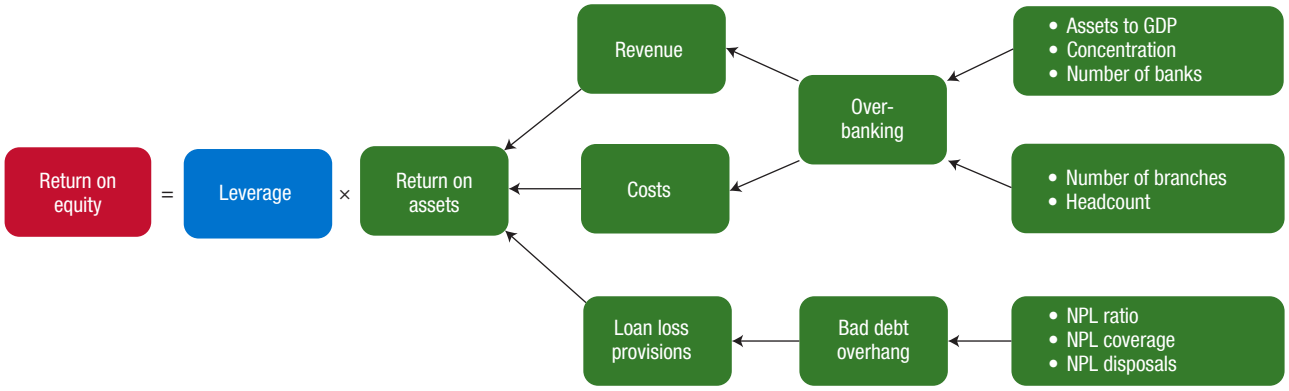
... and analysts do not expect this to change quickly ...

4. Selected European Bank Return on Equity (Percent)



... in the face of significant structural challenges.

5. Structural Causes behind Weak Profitability



Sources: Bloomberg L.P.; SNL Financial; and IMF staff estimates.
Note: In panel 1, the yield curve slope shows the difference between the three-year euro swap rate and the overnight euro rate. Panel 3 is based on a sample of 172 of the largest European banks. Panel 4 is based on about 80 European banks with analysts' forecasts. E = estimate; NPL = nonperforming loan; ROE = return on equity.

(less than 8 percent) for about half of the banks, by assets (Figure 1.22, panel 3).[15]

Although cyclical support for bank profits is welcome, it is likely to be insufficient to resolve the profitability challenge that many banks and banking systems face. The October 2016 GFSR concluded that even after a cyclical recovery in profits, a group of structurally weak banks, representing about $8.5 trillion in assets (or about one-third of bank assets), would be stuck with a return on equity less than 8 percent. This finding is corroborated by market analysts who do not expect the economic upturn to increase bank profits significantly and predict that the asset-weighted average return on equity for about 80 European banks will remain below 8 percent until 2019, and the majority will have a return on equity below that level over the next three years (Figure 1.23, panel 4).

Persistently weak profitability is a systemic stability concern. Low profits can prevent banks from organically building cushions against unexpected losses and thereby make them more vulnerable to adverse shocks. Sustained returns below the cost of equity can also inhibit banks' access to private capital, because investors are generally more willing to recapitalize banks if their profitability will sustain valuations above book value and so avoid future dilution. At the same time, banks facing profitability pressures may look to drive up returns by taking greater risks, for example by seeking higher yields, lending to less creditworthy borrowers at higher spreads, or increasing the maturity mismatch between loans and funding. Weak returns also limit banks' ability to expand balance sheets and lend without depleting their capital base, and therefore place a drag on recovery.

System-wide Operating Environments Are Compounding Challenges to Bank Profitability

Does weak profitability result from poor business models only, or do system-wide operating environments also play an important role? To answer this question—which has important policy implications—we divide banks in our sample of $35 trillion by assets of 172 large European banks into three groups: global, Europe focused, and domestic (Table 1.3 provides further information on the grouping of banks and on the sample used in this analysis). Although the challenge of bank profitability is widespread, domestic banks (banks with more than 70 percent of revenues or assets in their home market) as a group struggled especially with profitability in 2016. Overall, three-quarters of domestic banks in our sample had a weak return on equity, compared with about 65 percent of sample global banks and just 15 percent of Europe-focused banks in our sample (Figure 1.23, panel 1).

In the euro area, significant strides have been made to forge a full-fledged banking union. However, differences in national supervisory practices, legal frameworks, impediments to cross-border mergers and acquisitions, and the role of government policies and institutions in influencing credit distribution mean that the country-level system operating environment and features can influence profitability. Domestic banks, in particular, face more limited scope to improve profitability by shifting their exposures across markets, and hence the profitability of these banks more clearly reflects the structural features of their home systems. Therefore, the discussion of structural features in this section focuses on the performance of domestic banks.

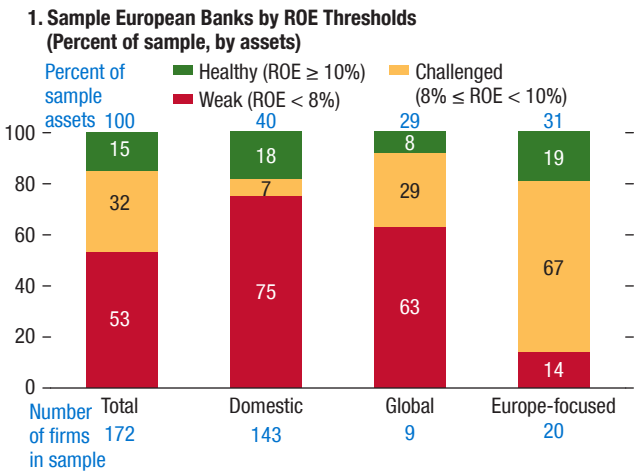
There is great variability in domestic banks' profitability across countries—measured on either a return on equity or return on assets basis (Figure 1.23, panel 2). Although sample domestic banks in Italy and Portugal suffered losses overall in 2016, and the German, Spanish, and U.K. domestic banks in our sample were barely profitable, sample domestic institutions in Ireland, Norway, and Sweden were able to generate much higher returns in the same year.

This variability in profits suggests that it is not necessarily the domestic bank business model as a whole that is the problem, but that conditions and system-wide features in each country can also limit profitability. Cyclical economic conditions—including interest rates, the slope of the yield curve, asset quality, and credit growth—could drive some of this variability. But there are also a number of system-wide structural impediments that could

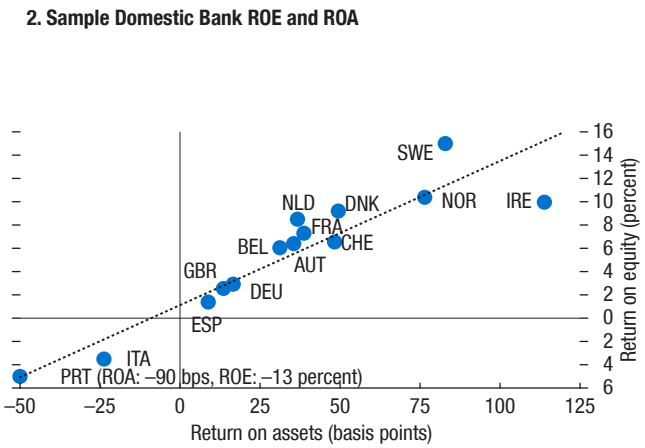
[15]Much of the analysis in this section is based on 2016 profit data. If annual 2016 data have not yet been published, available figures have been annualized. In the few cases where no 2016 numbers have been reported, 2015 profits have been used. An 8 percent return on equity benchmark is used because, as discussed in the October 2016 GFSR, investor surveys suggest that banks' cost of equity is at least 8 percent (though some investors indicated that the cost of equity is above 10 percent).

Figure 1.23. European Bank Profitability, 2016

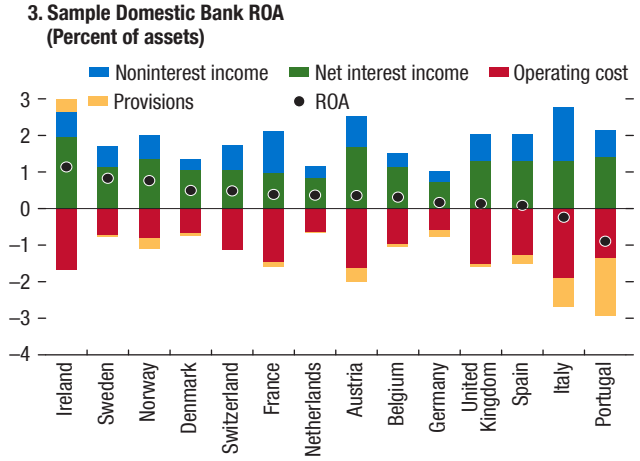
Return on equity varies by type of bank ...



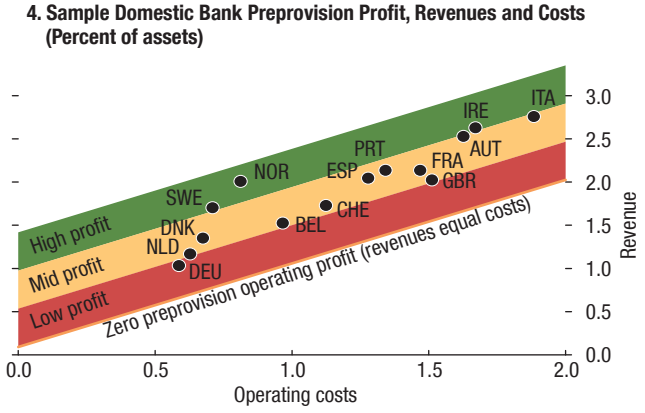
... and profitability varies across countries.



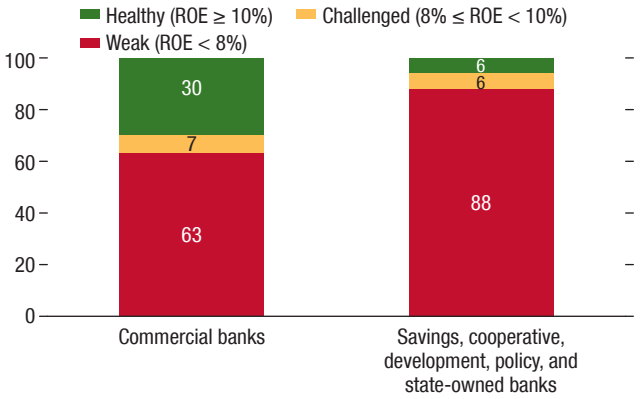
The underlying drivers of profitability differ ...



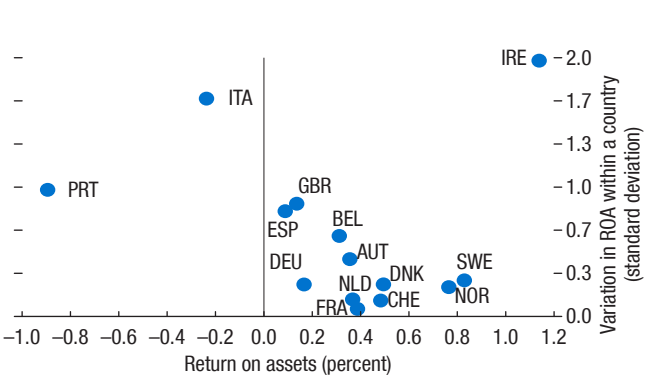
... and may be related to revenues and costs.



Profitability also varies across groups of institutions ...



... and within countries.



Sources: Bloomberg L.P.; SNL Financial; and IMF staff calculations.
Note: Panel 1 is based on a sample of 172 of the largest European banks. Panels 2 to 6 are based on the 143 domestic banks in the sample. The individual countries in the figure are those with the 15 largest bank assets in the sample, excluding Greece. Conduct costs have been removed. Data labels in the figure use International Organization of Standardization (ISO) country codes. ROA = return on assets; ROE = return on equity.

Table 1.3. Details of the Sample Used in the European Bank Analysis

Sample: The sample used in the analysis contains 172 of the largest European banks, where the required data were available. Total 2016 assets in the sample amount to $35 trillion. The sample includes a range of different types of bank so that the analysis could distinguish between profitability across a range of institutions by business model, ownership, and country.

Type of bank: The analysis classifies banks into three main types: domestic, Europe focused, and global. The distinction is based on the geographic location of bank revenues, or assets if revenues are not available. If neither of these is reported, a manual review of qualitative information in bank financial statements is used.

Type of bank:	Definition:
Domestic bank	Home market > 70 percent of total
Europe-focused bank	Europe > 70 percent, but home market < 70 percent of total
Global bank	Europe and home market < 70 percent of total

Bank classification: The classification of institutions into commercial banks and others (*Landesbanken*, cooperative banks, state-owned banks, and policy banks) is based on a review of each bank's financial reports and websites.

	Sample Assets (billions of U.S. dollars)						Proportion of Sample Assets (percent)	Number of Firms in the Sample					
Countries	Total	Domestic	Europe Focused	Global	Commercial Banks	Others		Total	Domestic	Europe Focused	Global	Commercial Banks	Others
France	7,785	2,475	5,309	0	3,648	4,136	22.3	7	4	3	0	2	5
United Kingdom	6,697	2,177	0	4,520	6,648	49	19.2	13	10	0	3	12	1
Germany	4,452	2,180	595	1,677	2,483	1,969	12.7	22	17	4	1	9	13
Spain	3,767	1,583	0	2,184	3,601	166	10.8	15	13	0	2	11	4
Italy	2,651	1,744	906	0	2,063	588	7.6	21	20	1	0	10	11
Switzerland	2,476	612	95	1,769	1,978	498	7.1	20	16	1	3	8	12
Netherlands	1,866	276	1,590	0	940	926	5.3	7	5	2	0	4	3
Sweden	1,545	318	1,227	0	1,506	39	4.4	7	4	3	0	5	2
Denmark	825	331	494	0	803	22	2.4	6	5	1	0	5	1
Austria	733	514	220	0	307	426	2.1	14	13	1	0	5	9
Belgium	543	253	290	0	543	0	1.6	5	4	1	0	5	0
Norway	346	346	0	0	321	26	1.0	6	6	0	0	4	2
Greece	340	340	0	0	340	0	1.0	5	5	0	0	5	0
Portugal	314	273	40	0	214	99	0.9	6	5	1	0	3	3
Ireland	289	289	0	0	188	101	0.8	4	4	0	0	3	1
Others	299	278	21	0	106	193	0.9	14	12	2	0	9	5
Total	**34,929**	**13,990**	**10,788**	**10,150**	**25,690**	**9,239**	**100**	**172**	**143**	**20**	**9**	**100**	**72**
Proportion of total (percent)	100	40	31	29	74	26		100	83	12	5	58	42

Sources: SNL Financial; and IMF staff calculations.

Note: Other countries are those where there are fewer than four banks in the sample (Cyprus, Finland, Iceland, Liechtenstein, Luxembourg, Malta, Slovenia).

lower bank profitability even after cyclical conditions improve.[16]

To understand which structural features may be creating the greatest impediments, it is important to assess the sources of weak profitability. Figure 1.22, panel 5, shows how return on assets can be decomposed into revenues, costs, and loan loss provisions. The range of revenues, costs, and provisions for the domestic banks in our sample in 2016 is shown in Figure 1.23, panels 3 and 4. Interestingly, some domestic banks with weak return on assets have a relatively high preprovision operating profit. This suggests that profitability is largely being affected by the provisioning that they need to undertake to build buffers against the nonperforming loans on their balance sheets. Other domestic banks in the sample with weaker preprovision operating profits may be facing different structural challenges affecting revenues and costs, as discussed below.

Overbanking in Systems Should Be Reduced

One main structural challenge is overbanking. There is no common definition of overbanking. The European Systemic Risk Board has used this term to describe excessive growth in the European banking system, and the European Central Bank has said that overbanking and overcapacity create intense competition and affect bank profitability.[17] Here, the term "overbanking" refers to the variety of structural factors that lead to an overly large banking sector that affects the profitability of the banks in the system. Overbanking can affect revenues—possibly owing to too many banks chasing too few profitable and sound lending opportunities, compressing pricing and margins—and can affect costs and operational efficiency—possibly due to a high number of branches or staff (Figure 1.22, panel 5).

The causes of overbanking can vary from country to country; examples include a banking system with assets that are large for the economy it serves, a long weak tail of banks with low buffers, or too many banks with a regional focus and narrow mandate. These features can result in concentrated lending opportunities and less scalable lending, or a high number of branches relative to the assets in the banking system that add to costs and reduce operational efficiency.

The strength of the structural factors in each country varies across domestic banking systems. In countries where most of the sample domestic banks perform poorly—shown in Figure 1.23, panel 6, where both return on assets and the variation in returns are low—system-wide impediments to profitability are more likely.

Table 1.4 shows a number of system-wide metrics to highlight the aspects of overbanking in different systems.

- The size of banking systems is illustrated by the ratio of local bank claims in a system relative to GDP.
- The degree of concentration in a banking system can be suggested by a number of measures, including bank assets per credit firm, the number of banks operating in a country, and an index of concentration (Herfindahl).
- Cost pressures reflect many factors, and in reality the structural drivers of revenues and costs are intertwined; for example, a high number of branches and staff can be a by-product of having too many banks in the system. These operational efficiencies are illustrated by the level of assets per branch and per employee.

In addition, system structure may have an impact on profitability. Banking systems with a high proportion of savings or cooperative banks, *Landesbanken*, and policy or state-owned banks may face additional pressure on revenues.[18] Figure 1.23, panel 5, shows that the domestic cooperative and savings banks, devel-

[16]The October 2016 GFSR includes an analysis of the impact of a cyclical recovery on European bank profitability and finds that this would not be sufficient to fully restore profitability.

[17]European Systemic Risk Board 2014 highlights the ratio of banking system assets to GDP as an important metric in identifying overbanking. A European Central Bank speech—"Resolving Europe's NPL Burden: Challenges and Benefits," by Vitor Constancio (February 3, 2017)—notes that in addition to the resolution of nonperforming loans, bank profitability is also challenged by high costs and overbanking (https://www.ecb.europa.eu/press/key/date/2017/html/sp170203.en.html). Another European Central Bank speech—"Welcome Address at the First Annual ESRB Conference," by Mario Draghi (September 22, 2016)—notes that overcapacity and the ensuing intensity of competition affect bank profitability (https://www.ecb.europa.eu/press/key/date/2016/html/sp160922.en.html).

[18]Savings banks are institutions whose primary purpose is to channel savings deposits, particularly by providing local or regional banking services to small and medium-sized enterprises. Cooperative banks are similar institutions that are owned by their customers. *Landesbanken* are public banks in Germany that are owned by regional authorities. Policy or state-owned banks are owned by governments.

Table 1.4. Structural Factors Affecting Bank Revenues and Costs

	System Size	System Concentration			Operational Efficiency		System Structure
	Bank Local Claims to GDP (times)	Assets per Credit Firm (billions of euros)	Total Number of Credit Firms	Herfindahl Concentration Index for Credit Institutions (index)	Assets per Branch (millions of euros)	Assets per Headcount (millions of euros)	Share of Savings and Cooperative Banks (percent)
	2016:Q3	2015	2015	2015	2015	2015	2015
Austria	1.5	1.3	678	397	209	12	55
Belgium	1.4	10.8	99	998	306	19	4
Denmark	3.0	9.1	113	1,180	921	25	20
France	2.1	17.5	467	589	217	20	60
Germany	1.6	4.3	1,774	273	225	12	53
Ireland	1.1	2.6	416	679	1,056	50	
Italy	1.9	6.0	656	435	129	13	12
Netherlands	2.2	12.0	209	2,104	1,419	28	30
Portugal	1.9	3.1	147	1,159	80	9	35
Spain	1.7	13.0	218	896	91	14	43
Sweden	1.8	8.4	153	866	721	24	24
United Kingdom	2.3	25.8	362	432	869	23	19

Sources: Bank for International Settlements; European Association of Cooperative Banks; European Central Bank; European Savings Bank Group; Haver Analytics; and IMF staff calculations.

Note: Red (green) shading denotes the four most (least) overbanked systems or those with the highest (lowest) share of savings, cooperative, or state banks. The remaining four systems are shown in yellow. Data are for the dates shown, or latest available figures. The first column shows domestic claims of all banks located in each country, relative to GDP.

opment and policy institutions, *Landesbanken,* and state-owned banks in our sample tended to have lower overall return on equity than other sample domestic banks in 2016.

Overall, no single structural factor clearly explains profitability concerns across a range of countries. A number of features in a system may hurt institutions' pricing and other behavior that then put downward pressure on the profitability of other banks operating in the same country. Each country has a unique mix of structural features that may impact profitability. For example, the French banking sector is large relative to the economy and has a high share of savings and cooperative banks. The banking systems in Austria and Germany have a large number of banks, low concentration, and a large share of savings and cooperative banks. In Italy, Portugal, and Spain there is a large number of branches or staff relative to banking assets (there is also a large number of banks and low concentration in Italy).

More Progress Needs to Be Made in Systems with the Biggest Challenges

Some banking systems have also been reducing costs by cutting excess capacity (Figure 1.24, panels 1 and 2). Banking systems in Denmark, the Netherlands, and Spain, in particular, have seen larger percentage reductions in branches and employees. Rationalizing branches, so that the ratio of deposits to branches of each sample bank at least reaches the European average, could reduce operating expenses by about $23 billion overall, equivalent to 23 percent of after-tax profits for the banks considered here.[19]

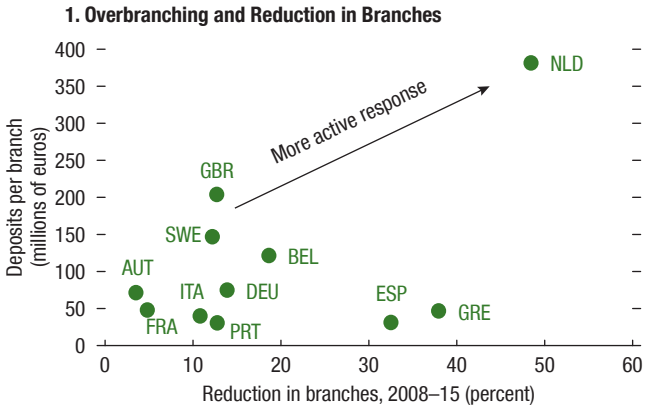
Both business pressures and labor market rigidities can inhibit banks' ability or incentives to restructure more quickly and aggressively. For many banks, high restructuring costs reduce up-front earnings, effectively precluding banks from making the cuts needed to become more efficient. Likewise, many branches may have operating leases that run for a number of years, preventing the realization of short-term savings from closing branches. Demographic factors can also affect a decision to maintain branches because older populations tend to prefer banking in person, rather than over the Internet.

There has also been progress in tackling other structural features. For example, Spain underwent a substantial consolidation in 2009–12, accompanied by

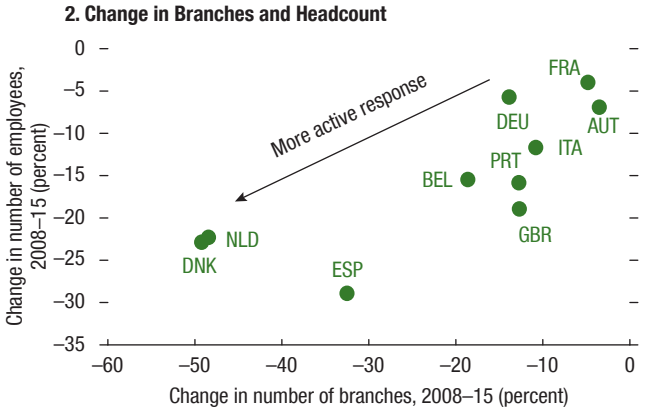
[19]This calculation is based on 159 banks out of the 172-bank sample, representing about 98 percent of sample assets.

Figure 1.24. European Banking System Actions to Reduce Costs

Actions to reduce branches vary significantly ...



... as do cuts in headcount.



Sources: European Central Bank; and IMF staff calculations.
Note: Data labels in the figure use International Organization for Standardization (ISO) country codes.

reforms to strengthen governance. There has been some consolidation in the German banking system, and *Landesbanken* continue to deleverage, with institutions downsizing balance sheets, increasing their focus on core business activities, and closing subsidiaries or foreign operations. In Italy, two large *popolare* banks have merged, and reforms to the cooperative bank sector, aiming to strengthen governance, have also been legislated.

More progress needs to be made to tackle profitability challenges in the banking systems with the biggest challenges. The specific actions needed will vary according to the mix of structural factors affecting the profitability in each banking system. Table 1.6 provides recommendations for actions in several European countries.

The Burden of Nonperforming Loans Still Needs to Be Reduced

The euro area as a whole has made progress in alleviating the burden of nonperforming loans on balance sheets. The formation of new problem loans has slowed as the economy has started to recover, write-offs have picked up, and sales of nonperforming loans have increased—cumulative 2010–16 sales now total about 40 percent of the peak level of impaired loans in the euro area.[20]

Resolving problem loans should bring real benefits. Institutions that have dealt adequately with nonperforming loans should also need to provision less in the future. Banks in Ireland and Spain, in particular, have made good progress in reducing nonperforming loans from peak levels. This followed a recognition of the systemic size of the problem, coupled with firm action to address the overhang, including through asset management companies, a strategic approach to restructuring banks, and government recapitalization support. But relatively little reduction, relative to peak levels, has occurred in two of the countries with the highest nonperforming loan ratios, Italy and Portugal (Table 1.5), and further progress needs to be made (shown by the recommendations in Table 1.6). For example, it could take about six years on average for the countries across the euro area to resolve the burden of impaired assets at current write-off rates and new bad debt formation rates[21]—though the pipeline of loan transactions suggests that sales of bad assets could pick up, particularly in Italy.

While actions are being taken to address the debt overhang, a number of structural barriers are still blocking the disposal of nonperforming loans. Inefficient legal frameworks can impede loan recovery and require banks to provision more. Several of the larger distressed asset markets reportedly continue to suffer from poor information quality, which lowers buyers' reservation prices. The characteristics of loan portfolios are structurally unattractive in some countries—it is harder for investors to price portfolios consisting of

[20]Data for sales of nonperforming loans are estimated from data in Deloitte 2017 and Pricewaterhouse Coopers 2016.

[21]IMF 2016 reached a similar conclusion on the length of time to resolve nonperforming loans in the euro area.

Table 1.5. Asset Quality Position and Recent Progress

	Gross NPL Ratio (percent)	Change from the Peak (percentage points)	Net NPL Ratio (percent)	Change in the Net NPL Ratio (percentage points)	Cumulative Write-offs to NPLs (percent)	Coverage Ratio (percent)	Change in Coverage Ratio (percentage points)
	2016:Q3		2016:Q3	2011–16	2013–15	2016:Q3	2011–16
Austria	3.1	–1.0	1.3	0.5	37	58	–14
Belgium	3.5	–0.8	2.0	0.2	23	44	–4
Denmark	3.3	–2.6	1.9	0.1	49	43	–8
France	3.9	–0.6	2.0	0.2	56	50	–9
Germany	2.0	–0.7	1.2	0.2	73	42	4
Ireland	14.6	–11.1	8.5	–0.4	61	42	–3
Italy	12.2	–0.1	6.2	2.5	22	49	9
Netherlands	2.6	–0.7	1.4	–0.2	54	44	4
Portugal	12.6	–0.2	4.3	0.8	53	66	11
Spain	5.7	–3.7	3.3	0.7	63	43	–14
Sweden	1.0	–0.2	0.7	0.5	48	34	–36
United Kingdom	1.0	–3.0	0.6	–1.9	46	42	4

Sources: Central banks; Haver Analytics; IMF, Financial Soundness Indicators database; SNL Financial; and IMF staff calculations.
Note: Red (green) shading denotes the four most (least) risky systems or those that have made the least (most) progress. The remaining four systems are shown in yellow. Data are for the dates shown, or latest available figures. The definition of NPLs is not harmonized across all countries. The peak in the second column is the maximum since 2008. Cumulative write-offs are for a broad sample of banks and are shown as a percentage of 2013 NPLs. NPL = nonperforming loan.

small, heterogeneous loans to small and medium-sized enterprises with collateral of uncertain value than to price portfolios of homogenous unsecured loans. But while these technical issues are important, insufficient buffers at banks to absorb additional losses recognized on sales of bad debts at market prices continues to be an impediment. Therefore, the lack of progress on resolving nonperforming loans also reflects weak earnings and insufficient generation of capital and provisioning buffers.

Systemically Important Banks May Also Be Affected by System-wide Problems

These system-wide challenges are not only a problem within countries: they can affect the profitability of global systemically important banks (G-SIBs) in Europe as well. These institutions are finding it difficult to keep up with their global competitors, and in some cases this is partly due to the profitability problems they are facing in their home countries. The extent of this domestic impact will depend on the exposure of G-SIBs to their home economies. Although this exposure varies significantly across banks, domestic business represents on average about half of European G-SIBs' total assets and about 40 percent of total revenues.[22]

European G-SIBs have strengthened their capitalization and liquidity positions and are in the process of restructuring business models by cutting back balance sheets and reorganizing businesses. They have also made good progress in writing off legacy assets. But profitability remains a challenge for many of these banks and virtually none of the European G-SIBs are currently able to approach the profitability of their U.S. peers (Figure 1.25, panel 1). Of those that have comparable preprovision profitability, several continue to be hampered by continued high provisions, which lowers their return on assets. But many banks have poor preprovision profit margins and thus require further restructuring of their business models to improve core profitability (Figure 1.25, panel 2). While European G-SIBs have been making efforts to cut costs by reorganizing their businesses, these efforts have had varying degrees of success (Figure 1.25, panel 3).

Market pricing of G-SIBs shows differences in investor perceptions of European banks (Figure 1.25, panel 4). Higher price-to-book ratios and lower credit default swap spreads indicate market conviction that business models are already robust. In contrast, lower equity market valuations and higher spreads suggest that investors believe further progress is needed to strengthen business models. Addressing system-wide

[22]Domestic assets and revenues range from about 10 percent of the total to about 95 percent of the total across European G-SIBs, excluding Standard Chartered, based on data from bank financial statements, Bloomberg L.P., SNL Financial, and IMF staff calculations.

Table 1.6. Selected IMF Policy Recommendations

Country	Recommendations	Progress
France	Ensuring profitability necessitates further cost cutting, diversification, and possibly consolidation within the euro area. Regulated savings rates in France should continue to be adapted to reflect market interest rate conditions.	Banks are adapting business models by further diversifying into asset management, private banking, and insurance activities.
Germany	The banking system faces structural headwinds and will need to adapt. Low profitability reflects various combinations of persistent crisis legacy issues, provisions for compliance violations, the need to adjust business models to the postcrisis regulatory environment and technological change, as well as long-standing structural inefficiencies.	Consolidation is ongoing, albeit gradually. The German savings bank sector is deleveraging, with institutions downsizing balance sheets and focusing on core business activities. Restructuring efforts at large banks, however, still need to bear fruit and cost cutting remains slow.
Italy	Further steps would help advance banks' balance sheet repair, including through more intensive use of out-of-court debt restructuring mechanisms; strengthened supervision to facilitate decisive progress in reducing nonperforming loans; and undertaking a systematic assessment of asset quality for those banks not already subject to the European Central Bank comprehensive assessment, with follow-up actions in line with regulatory requirements. Effective use of the framework for the timely and orderly resolution of failing banks would prevent the costs of the weaker banks from being borne by the rest of the system and eventually raising stability concerns.	Monte dei Paschi applied for a precautionary state recapitalization in December 2016. Unicredit successfully raised almost €13 billion in capital and, following their conversion into joint-stock companies, Banco Popolare di Milano and Banco Popolare merged. Mutual bank reform is ongoing. The authorities approved issuance of up to €20 billion in additional government debt to potentially support bank capital and liquidity.
Portugal	To return to profitability and successfully finance economic growth, banks should clean up their balance sheets through a comprehensive approach to debt restructuring supported by an increase in capital, loan loss provisions, and impairment provisions and by appropriately pricing and selling bad loans. Banks should also reduce operating costs and improve their internal governance to let lending decisions be guided solely by commercial criteria.	In March 2017, the final agreement with the European Commission on a €5 billion recapitalization of Caixa Geral de Depositos was announced. Negotiations to sell Novo Banco continue. Banco Comercial Portugues has received a private capital injection and Banco BPI's takeover by CaixaBank has been concluded.
Spain	Continuing to ensure adequate provisioning, further improving efficiency gains—possibly through mergers—boosting non-interest income, and further increasing high-quality capital would enhance the banking system's ability to withstand shocks, and facilitate sufficient credit provision as credit demand picks up.	The system is closer to putting most of the crisis legacies behind it. The framework for savings banks and banking foundations is now fully in place and requires banking foundations either to divest relevant credit institutions or to set up reserve funds.

Source: IMF 2016–17 Article IV Staff Reports and Financial System Stability Assessments; and IMF staff.

problems together with efforts to address business models would work best together in resolving profitability challenges, therefore enhancing systemic resilience.

The Sovereign-Bank Nexus Could Reemerge

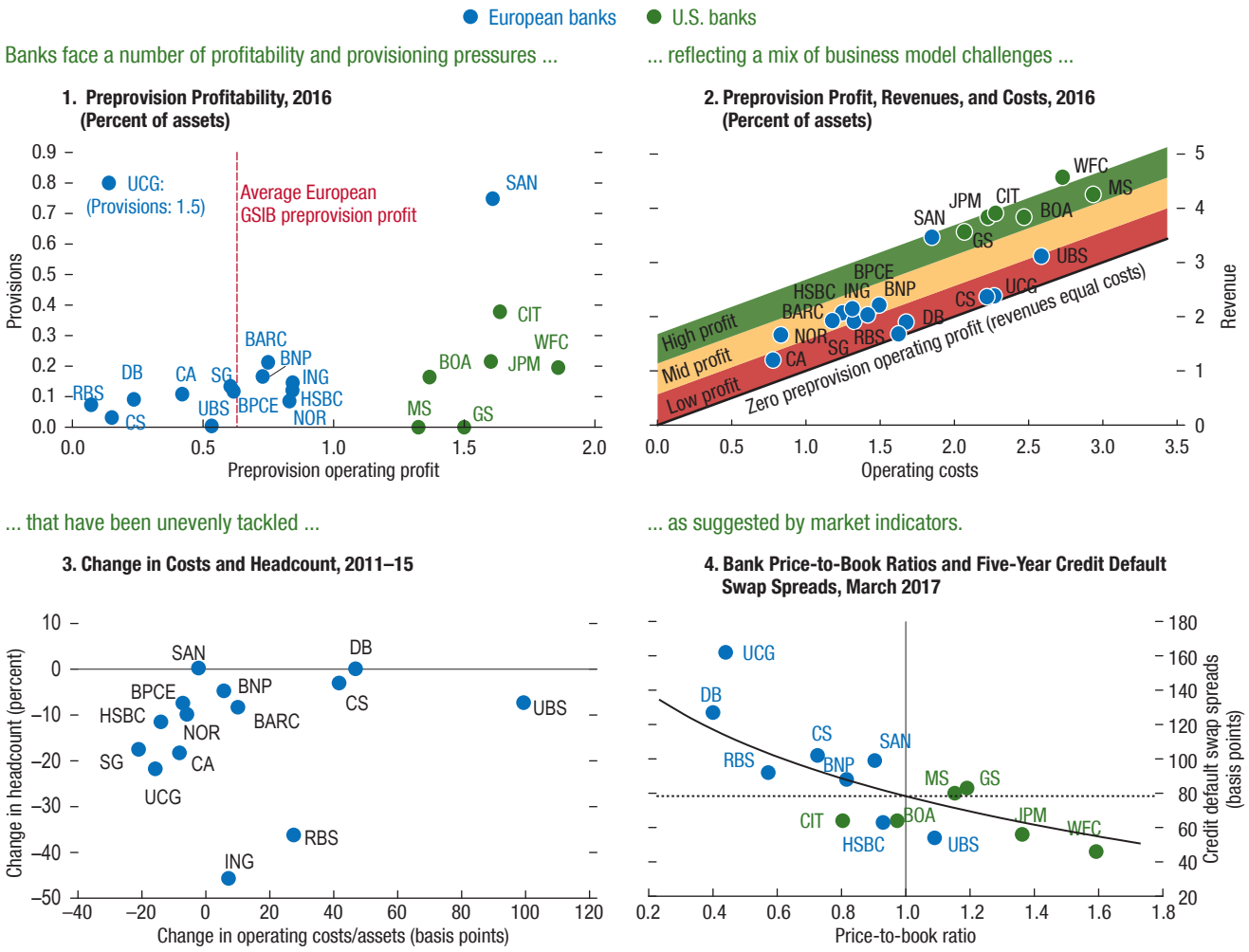
The combination of weak profitability in both domestic banks and G-SIBs, lack of access to private capital, and a large stock of unresolved problem loans has the potential to reignite systemic risks in some economies. Weaknesses in the Italian and Portuguese banking systems led to a widening in bank credit default swap spreads in 2016 (Figure 1.26, panels 1 and 2). These banking risks led, in turn, to a rise in associated sovereign spreads through market concerns about contingent liabilities for the government.[23] Measures such as the EU Bank Recovery and Resolution Directive and Total Loss Absorbing Capacity rules should limit spillovers from banks to sovereigns.[24] But it will take some time to build up sufficient bail-inable liabilities and address bank and system-wide weaknesses, implying that severing the bank-sovereign nexus remains a work in progress.

More recently, government bond spreads have risen in France and Italy, and they remain at high levels in Portugal. This likely reflects a combination of con-

[23]IMF 2015c discusses these issues in more detail.

[24]The Bank Recovery and Resolution Directive establishes rules within the European Union for recovery and resolution of banks, including the resolution of nonviable banks, through the bail-in of some creditors, and rules establishing a minimum amount of bail-inable instruments (8 percent of total liabilities).

Figure 1.25. Global Systemically Important Bank Business Model Challenges



Sources: Financial statements and management presentations from banks listed in the note; Bloomberg L.P.; SNL Financial; and IMF staff calculations.
Note: In panels 1 to 3, conduct costs have been removed. GSIB = global systemically important bank; BARC = Barclays; BNP = BNP Paribas; BOA = Bank of America; BPCE = Groupe BPCE; CA = Crédit Agricole; CIT = Citigroup; CS = Credit Suisse; DB = Deutsche Bank; GS = Goldman Sachs; HSBC = HSBC Holdings; ING = ING Bank; JPM = JPMorgan; MS = Morgan Stanley; NOR = Nordea; RBS = Royal Bank of Scotland; SAN = Santander; SG = Société Générale; UBS = UBS Group; UCG = Unicredit; WFC = Wells Fargo.

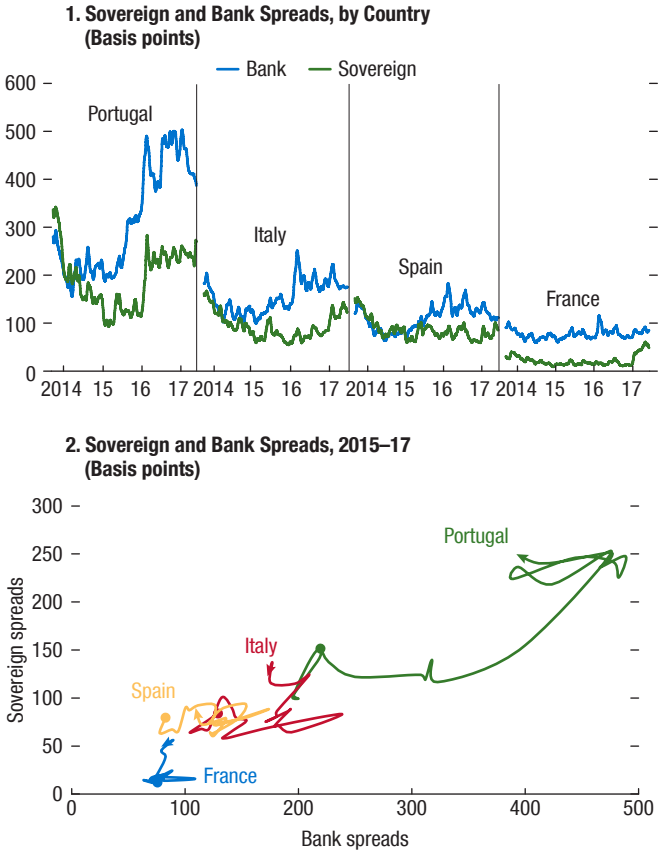
cerns about higher political risks and government debt burdens. There is a risk that higher sovereign spreads could spill back to the banking sector. First, sovereign downgrades could increase bank wholesale funding costs and reduce the amount of assets that banks have available as acceptable collateral. Second, although banks have generally reduced their holdings of local government bonds, some institutions continue to hold a significant amount of these bonds on their balance sheets and could face mark-to-market losses on the bonds held in trading books and available-for-sale portfolios. These wholesale funding and trading risks would be especially problematic if financial conditions were to tighten sharply.

Brexit[25] further Complicates Challenges for System Efficiency and Financial Stability

Box 1.3 assesses the potential financial stability and cost implications of Brexit, albeit with a high degree of

[25]Brexit refers to the June 2016 U.K. referendum result in favor of leaving the European Union.

Figure 1.26. Bank and Sovereign Nexus



Sources: Bloomberg L.P.; and IMF staff calculations.
Note: The figure shows mean five-year senior credit default swaps for banks from each country and five-year sovereign spreads to Bunds. Panel 1 shows a 10-day moving average. Panel 2 shows the evolution of sovereign and bank spreads from 2015 (dot) to 2017 (arrow).

uncertainty about the final outcomes of negotiations. In particular, London is susceptible to losing some of its predominance as a global financial center, with attendant costs related to the loss of economies of scale in conducting financial activities. Regulatory challenges and complexities may also increase, although lower concentration in one center may bring diversification gains to financial stability.

More Comprehensive Efforts Are Needed to Address System and Business Model Challenges

Banks should seek out opportunities to increase weak revenues and reduce high operating costs. Any consolidation should also go hand in hand with governance reforms, where needed, and should avoid creating any too-big-to-fail concerns. To determine weak links in banking systems with significant asset quality challenges, consideration could be given to targeted asset quality reviews for banks that have not undergone such an exercise. Regulators should then take action to resolve unviable institutions to remove excess capacity from banking systems. Authorities should also focus on removing system-wide impediments to profitability. The precise prescription, however, will vary across countries (Table 1.6).

Banks have the primary responsibility for developing sustainable earnings by tackling business model problems. While there is no single business model that will work for all, banks should continue to restructure their business to enhance returns and invest in technology to increase medium-term efficiency. But supervisors also have a role to play. Encouragingly, authorities are increasingly emphasizing the examination of bank business models in their supervisory frameworks. Both the Single Supervisory Mechanism, in its Supervisory Review and Evaluation Process, and the U.K. Prudential Regulation Authority are taking a forward-looking approach to assessing the sustainability of bank business models. If any banks are reacting to profitability challenges by taking greater risks, authorities should consider macroprudential or other regulatory measures to reduce the probability of future problems.

Further action is needed to fully resolve the burden of nonperforming loans.[26] A number of initiatives have been undertaken, which should help speed up bad debt disposal. The European Central Bank has published guidance to banks on how to tackle nonperforming loans.[27] In Italy, two *Atlante* funds have been set up by a group of financial institutions and banking foundations, and the authorities have established a public guarantee on senior tranches of securitized bad loans. Several countries have also put in place reforms to legal frameworks to help alleviate the process of resolving problem loans. Accounting standards (International Financial Reporting Standard 9) should also ensure greater forward-looking provisioning when phased in and may change the dynamics of loss recognition by making banks more proactive. But supervisors should ensure that banks adopt ambitious, time-bound strategies for the disposal of nonperforming loans. Authorities should also

[26]See, for example, European Central Bank 2016; IMF 2015a, 2015b, and 2016; and Jobst and Weber 2016.
[27]European Central Bank 2017.

encourage the development of a market for problem loans. To help erode bank-sovereign links, consideration should be given to reducing the thresholds for the direct recapitalization of viable banks under the European Stability Mechanism and a common deposit insurance scheme should be established in the euro area.

Completing the regulatory reform agenda is vital to ensure that weaknesses are addressed and to reduce uncertainty. In particular, it is important to finalize an agreement on the Basel III package of reforms, including the revision of the "standardized" approach to the calculation of risk-weighted assets and boundaries to the use of internal models to assess risks (Box 1.2).

Box 1.1. Could Fragilities in Offshore Dollar Funding Exacerbate Liquidity Risk?

Global liquidity risks could be amplified by the currency mismatch between non-U.S. banks' assets and liabilities, especially if U.S. interest rates were to increase sharply and the dollar were to appreciate. Risks would be greatest for those banking systems that are highly dependent on short-term dollar funding for long-term assets.

In recent years, monetary policy divergence between the United States and other economies has led some non-U.S. banks to accumulate higher-yielding foreign-currency assets at a pace that has exceeded their funding in those currencies. In many cases, U.S. dollar–denominated assets have outpaced the supply of U.S. dollar funding via deposits, certificates of deposit, commercial paper, and other sources.[1] At the same time, regulatory changes and money fund reform have limited the supply of U.S. dollar funding.[2] The resulting imbalance in the supply and demand of offshore dollars has led to a persistent premium in the price to swap local-currency funding into dollars via foreign exchange swaps, known as the cross-currency swap basis.[3]

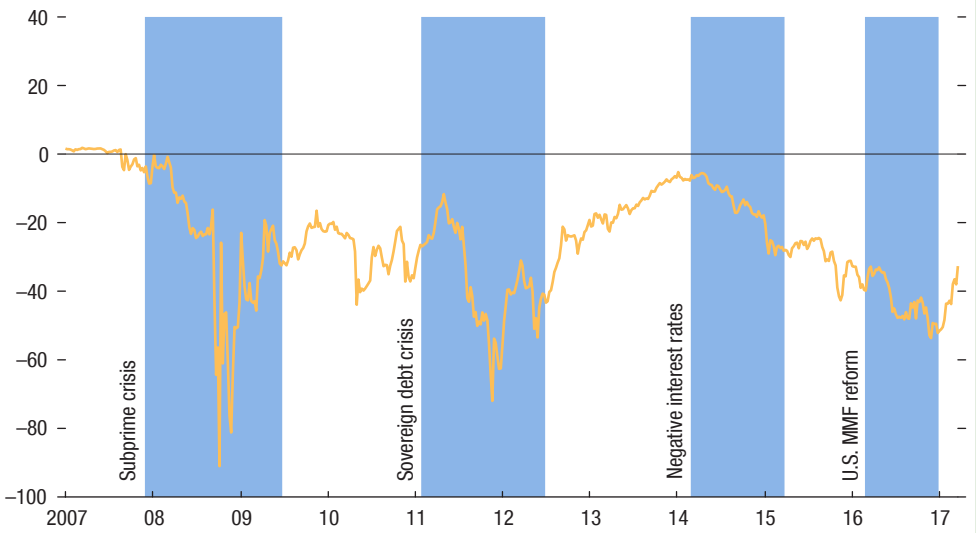
After having steadily widened over 2014–16, cross-currency swap bases have narrowed considerably since late 2016 (Figure 1.1.1). It is unclear what has reduced the cost of dollar funding over this recent period, though several factors point to greater availability of dollar funding—most notably a modest pickup in U.S. prime money fund assets, greater demand from other investors less affected by regulatory balance sheet constraints (for example, corporations, offshore money funds, private liquidity funds), and central bank efforts to provide larger backstops.

[1]McGuire and von Peter 2012.

[2]These include, for instance, bank regulatory reforms, notably adjustments to (1) the capital ratio—the cross-currency swap basis has been more volatile since the crisis, and greater volatility increases a bank's value-at-risk measure, which in turn affects the risk-weighted assets calculation and capital charges; (2) the Volcker Rule—which prohibits firms from engaging in proprietary trading activities in foreign exchange forwards and swaps; and (3) over-the-counter derivatives reform—which increased the capital and minimum margin requirements for cross-currency swap bases.

[3]Under no-arbitrage conditions, the cost of funding in dollars should be equal to the combined cost of funding in a foreign currency and swapping the funds for dollars.

Figure 1.1.1. Weighted Average of Cross-Currency Swap Bases in Selected Advanced Economies
(Basis points)



Sources: Bank for International Settlements; Bloomberg L.P.; and IMF staff estimates.
Note: Weights are based on daily average foreign exchange swap turnover versus the U.S. dollar for the euro, Japanese yen, British pound, and Swiss franc. MMF = money market fund.

Box 1.1 *(continued)*

Even so, many cross-currency swap bases remain negative, suggesting these factors have not been sufficient to fully meet the demand for dollars.

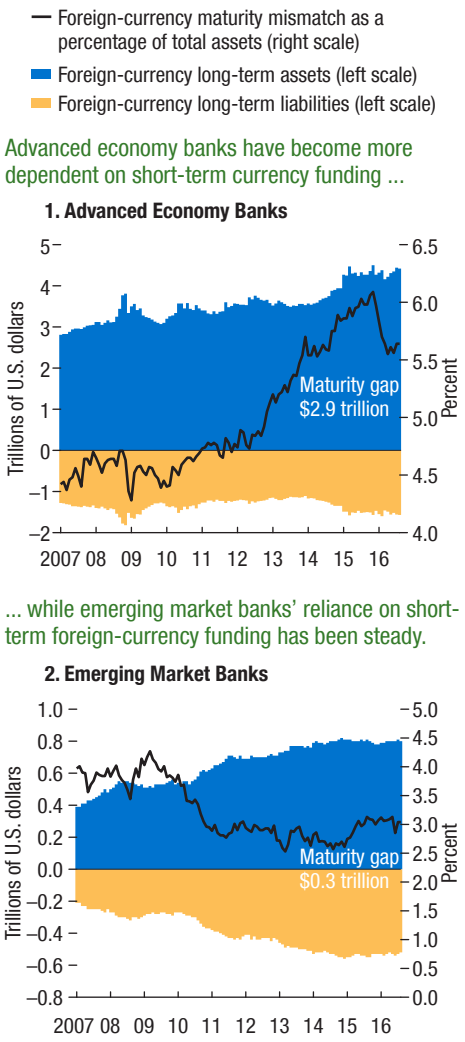
Furthermore, there is reason to believe that the imbalance could persist. Research has found that dollar appreciation—such as may be expected if U.S. growth accelerates and the Federal Reserve continues to raise policy rates—is associated with more negative cross-currency swap bases.[4] In addition, the supply of offshore dollars could deteriorate in the event of potential U.S. tax reform. U.S. corporations hold abroad an estimated $2.2 trillion in cumulative reinvested earnings from overseas operations. Roughly $1.3 trillion of that is in liquid assets, half of which is believed to be held in U.S. banks or U.S. investments. Based on what happened after the previous repatriation tax holiday in 2004 when U.S. companies repatriated $362 billion, tax incentives under a corporate tax reform could lead to repatriation of a significant portion of U.S. dollar assets. Other administrative measures, such as bank ring-fencing, have the potential to increase frictions in the supply of dollar funding, thus increasing the cost, and may lead to a more fragmented offshore dollar market.

Advanced economy banks, in particular, have become reliant on cheap short-term foreign-currency funding for their long-term foreign-currency assets (Figure 1.1.2). Since 2007, their maturity gap—the difference between long-term foreign-currency assets and long-term foreign-currency liabilities—has nearly doubled to $2.9 trillion. As a percentage of total assets, the maturity gap grew from 4.4 percent to a high of 6.1 percent in November 2015.

Banks are vehicles for maturity transformation, and interest rate risk is an intrinsic part of banking. Banks also actively manage foreign exchange and interest rate risk via derivative hedges. However, hedging introduces counterparty risk and does not eliminate rollover risk. When local-currency assets come under funding stress, the local central bank can usually provide almost limitless liquidity to banks via temporary funding transactions. But when funding strains arise for foreign-currency-denominated assets, local central banks can provide liquidity only from their finite foreign-currency reserves or by tapping foreign exchange swap facilities and credit lines with other official institutions. If offshore dollars were to become a scarcer resource, the resulting frictions could lead banks to reduce their global footprint or to increase

[4]Borio and others 2016.

Figure 1.1.2. Foreign-Currency Maturity Mismatches



Sources: Bloomberg L.P.; IMF, International Financial Statistics database, Monetary and Financial Statistics database; and IMF staff calculations.
Note: The foreign-currency maturity mismatch is the difference between long-term foreign-currency assets and long-term foreign-currency liabilities. Assets include 50 percent of other deposits, 50 percent of securities, other loans, 50 percent of equities, insurance, derivatives, trade credit, other accounts receivable residential, and accounts receivable. Liabilities include 50 percent other deposits ex-broad money, 50 percent of securities, other loan liabilities, insurance, derivatives, trade credit liabilities, other accounts payable residential, and accounts payable. In panel 1, advanced economies include Denmark, Finland, France, Germany, Greece, Ireland, Israel, Italy, Japan, Korea, Luxembourg, Netherlands, Norway, Portugal, Spain, and Sweden. In panel 2, emerging markets include Brazil, Bulgaria, Chile, Colombia, Egypt, Hungary, Indonesia, Malaysia, Mexico, Nigeria, Philippines, Poland, South Africa, Thailand, and Turkey.

Box 1.1 *(continued)*

their reliance on central banks acting as dollar providers of last resort.

In contrast to advanced economy banks, emerging market banks have a smaller and more stable maturity gap. Banking systems in emerging European economies are an exception, exhibiting large foreign-currency maturity mismatches, likely as a result of their extensive use of foreign-currency (mostly euro) deposit funding. The deposits are relatively sticky and generally safer than other forms of short-term funding. Foreign exchange regimes, such as currency boards, further mitigate risks. Yet even this kind of mismatch can present risk, and regulators have frequently advised banks to address it. In the event (however unlikely) that European short-term interest rates unexpectedly and rapidly rise, banks in these countries could be exposed to significant funding risk.

Global liquidity risks could be amplified by the currency mismatch between non-U.S. banks' assets and liabilities, the reduced supply of offshore dollars, and structural rigidities, especially if U.S. interest rates were to increase sharply and the dollar were to appreciate. Supervisors should encourage banks to reduce their foreign-currency maturity mismatches by lengthening their foreign-currency debt maturities and securing longer-term foreign-currency credit lines. Authorities should seek to expand bilateral and multilateral currency swap arrangements to backstop foreign currency liquidity, though use of these facilities should be viewed as extraordinary, with access to official liquidity priced accordingly.

Box 1.2. Regulatory Reform at a Crossroads

In response to the global financial crisis, the international community embarked on a major reform program to strengthen financial regulation. Addressing the fault lines at the source of the crisis was the key objective. This sweeping agenda has produced significant successes—banks have substantially increased their capital levels and holdings of liquid assets, increasing their resilience to shocks; derivatives trading is more transparent, and counterparty risks are lower; resolution frameworks have been introduced in some jurisdictions and upgraded in others; macroprudential frameworks have been developed; and the largest and most complex institutions are subject to higher prudential standards and more intense supervision. An unprecedented level of global cooperation has made this success possible—with advanced and emerging market economies participating in a massive effort to define and implement reforms.

Progress to date is impressive. The global financial system is now much stronger. But the reform program is not yet complete. Some key aspects remain unfinished: completion of the strengthened prudential frameworks for banks, insurance companies, and the asset management industry; implementation of the necessary measures to support effective cross-border bank resolution; full application of agreed-on policies to strengthen derivatives markets; development of policies to raise the resilience and facilitate the recovery and resolution of core financial market infrastructure, such as central counterparties; and further steps to raise the robustness of market-based finance. The global system thus remains vulnerable in some dimensions. Moreover, pressures to stall or even roll back the reform process appear to be building, given the difficult macroeconomic environment under which reforms are being implemented.

Finalization of the Basel III package of reforms—the revision of the "standardized" approach to the calculation of risk-weighted assets and limits on the use of internal models to assess risks—appears to have faltered. The Governors and Heads of Supervision group, which oversees the Basel Committee on Banking Supervision, postponed its January meeting, which had been expected to result in agreement on the remaining outstanding issues and complete the package. Discussions are continuing at the working level to bridge remaining areas of disagreement. The objective is to complete the final elements of the capital framework to ensure that banks are resilient and robust to shocks and that confidence in prudential standards is restored. The package under negotiation relies on three interlocking components: a risk-sensitive element (based either on a standardized approach or on banks' internal models), essential for appropriate risk-taking behavior; a leverage ratio backstop that does not adequately reflect risk and that helps guard against the procyclicality of the risk-sensitive framework and model risk; and an appropriately calibrated floor or constraint to prevent internally modeled capital requirements from falling below a certain proportion of the standardized approach amount, to provide a much-needed safety net against model risk. The three elements in combination mitigate the shortcomings of each measure in isolation to provide a coherent overall framework. The outstanding challenge is to reconcile views on the weight to attach to each element, particularly to the balance between reliance on internal models and constraint through the calibration of the floor. Completion of the agreement is important to cement the strong foundations for a safe and resilient global banking system and buttress market confidence in the overall approach. If necessary, implementation of the final measures could be phased in over a longer period to prevent potential procyclical consequences.

Design of regulatory policies requires authorities to form clear views of objectives and the likely effects of reforms, in advance of adoption, to weigh the benefits against the costs. It is good public policy to follow up such analysis with a thorough evaluation of the impact of reforms once they have been implemented and have taken hold. Such evaluations ensure that policies effectively meet their stated goals without major unintended negative side effects and that they continue to deliver on the objectives without imposing unnecessary costs. If policy evaluation reveals major unintended consequences or costs disproportionate to the risks, policy authorities must review and amend the regulations.

As global regulatory reform measures are gradually completed, it will be important to evaluate their impact. The initiative by the Financial Stability Board, in close collaboration with standards-setting bodies, to develop a new conceptual framework for the evaluation of international financial regulation before the Hamburg Group of Twenty Summit is thus very welcome. It is also natural to expect that the authorities will continue to review the impact of regulation (both domestic and international) to ensure that

Box 1.2 *(continued)*

policy measures effectively and efficiently achieve their intended benefits.

Policy reviews nonetheless add to uncertainty. As policymakers resolve such uncertainties, it is important to keep in mind the benefits of a strong, globally consistent framework. A strong framework will sustain financial stability and ensure that the financial system can support the real economy in bad times and good, and a globally consistent framework will support the benefits of international financial intermediation and avoid gaps and wasteful arbitrage that can be exploited to undermine the effectiveness of the regulatory framework and lead to fragmentation of the global system. Failure to complete the global reform agenda could erode the consensus already achieved. And that could encourage a short-sighted rollback and competition to ease regulation as growth continues to elude many advanced economies. Such fragmentation would also hurt countries outside the central standards-setting bodies that rely heavily on a strong global standard to level the playing field and support financial stability, in particular in emerging markets, at a time of higher risk.

A great deal is at stake for all jurisdictions when it comes to successful completion of the global regulatory reform agenda. Completion of the reforms is vital to address previously identified fault lines and thus ensure that the global financial system is safe and resilient and can promote economic activity and growth. It will also support renewed focus on new threats and emerging risks as the financial system continues to rapidly adapt and innovate. Support from all global players is essential to ensure that the full benefits of global financial stability are achieved and sustained.

Box 1.3. Implications of Brexit for Financial Stability and Efficiency

The United Kingdom is a key node in the global financial network, providing important economies of scale and positive network externalities. The benefits from London's role as a financial center stem from a combination of factors, including concentration of capital and risk management, as well as the availability of ancillary financial services and expertise (see Figure 1.3.1).

Although there is significant uncertainty about the outcomes of negotiations—thus rendering any analysis tentative in nature—Brexit threatens to reshape the relationship between the factors mentioned above. The challenges stemming from Brexit could undermine financial stability in ways that are difficult to estimate or predict at this juncture. However, it is also important to note that financial stability benefits could arise from a less concentrated banking system throughout Europe.

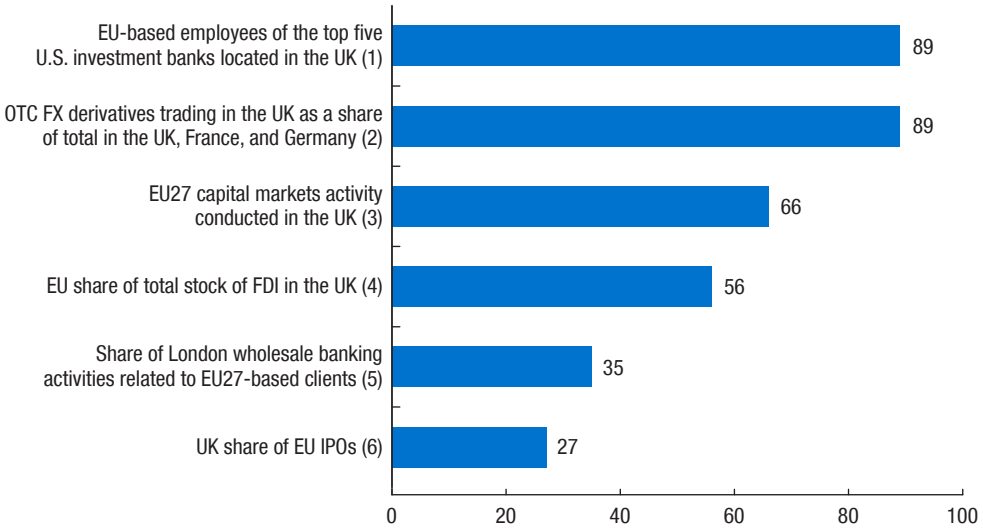
Concentration and Economies of Scale

Although there is a continuum of possible outcomes from Brexit negotiations, it is likely that financial firms' ability to operate across jurisdictions will be curtailed to some degree. Banking activities are likely to be the most affected by the loss of passport rights.[1] Many core areas of banking, including mortgages, cross-border banking, and deposit taking, rely on financial passports. Without them, banks will need to relocate activities outside the United Kingdom. Because the existing EU equivalence regime does not cover the provision of banking services such as lending and deposit taking under Capital Requirements Directive IV, anticipation by banks of their relocation process would smooth the transition.[2] Moreover, under current rules, the United Kingdom and the European Union would retain the right to revoke access if a regulatory regime is no longer deemed to be equivalent.

[1]In this box, passport rights refer to the legal ability of financial companies that are authorized to do a certain business in one EU member country to conduct the same business in other EU member countries without having to be authorized separately in each country.

[2]In this box, equivalence refers to the European Union's recognition of the regulatory or supervisory regime of a non-EU country as equivalent to the corresponding EU regime.

Figure 1.3.1. Measures of Financial Linkages between the United Kingdom and the European Union
(Percent)



Sources: (1) Bruegel; (2) Bank for International Settlements, as of April 2016; (3) Oliver Wyman; (4) Office of National Statistics; (5) Bruegel; and (6) PricewaterhouseCoopers.
Note: EU = European Union; FDI = foreign direct investment; FX = foreign exchange; IPO = initial public offering; OTC = over the counter; UK = United Kingdom.

Box 1.3 *(continued)*

Uncertainty about the negotiation outcome is pushing banks to anticipate Brexit-related costs. Banks have started preparing for a worst-case scenario, in which no agreement is reached, to avoid any possible disruption to their services. Duplication of some activities and business structures in different locations seems inevitable and represents an extra cost. Operating in different regulatory regimes will also increase the burden on banks.

The implications of Brexit for the asset management industry are likely to be lower. Most asset management activities could benefit from existing equivalence frameworks but approval would still be needed. Large U.K.-based asset managers who sell funds in the European Union often use Ireland and Luxembourg as the legal domicile for many funds covered by the Undertakings for the Collective Investment of Transferable Securities (UCITS) Directive, so they should not be affected.[3] Only UCITS funds domiciled in the United Kingdom but sold in the European Union would be affected by the loss of passport rights. Some managers could decide to discontinue these funds, but this is likely to represent a small fraction of the total market.

The impact on the insurance and reinsurance industry is likely to fall somewhere between the impact for banks and asset managers. Like banks, insurance and reinsurance companies may face relocation pressures, but there is already an equivalence regime for the reinsurance industry.

After Brexit, U.K.-based central counterparties will be required to secure European Markets Infrastructure Regulation recognition if they are to continue providing clearing in the European Union. Otherwise, a share of U.K.-based derivatives activity may need to relocate, possibly forfeiting some economies of scale.

The implications for EU-U.K. euro cross-border payments systems could be substantial. The United Kingdom may cease to be part of the Single Euro Payments Area unless membership is retained. The cost of making international payments could increase notably, affecting international activity. U.K. banks' access to the TARGET 2 and EURO-1 payments systems could also be at risk.

[3]The UCITS directive allows compliant investment funds domiciled in one member country to be sold across the European Union. Unless they are redomiciled in the European Union, these funds become "alternative investment funds" and fall under the less advantageous Alternative Investment Fund Managers Directive or must relocate to a domicile in the European Union.

Regulatory and Supervisory Capacity

The complexity of financial entities is likely to increase after the United Kingdom leaves the European Union, posing new challenges and costs for national supervisors. Even if there is a generous agreement on regulatory equivalence, the U.K. and other EU legal systems could start to evolve separately. Financial firms will be forced to develop new strategies for operating and competing in a reconfigured world, and business structures are likely to become more intricate. For example, different firms may split the same business line in very different ways across European supervisory jurisdictions. The greater complexity of financial firms will impose additional burdens on local regulators. New complex structures will require strong and fluid collaboration among regulators in various jurisdictions.

Even if euro clearing and settlement functions remain in London, the burden on U.K. regulators is likely to increase because they will be required to take over the regulation of rating agencies and trade repositories from the European Securities and Markets Authority. Such a task could amount to reviewing and revising thousands of pages of EU regulatory rulebooks.

Restrictions on international data sharing may hinder the assessment of cross-border financial risks. Legal restrictions on sharing financial information with non-EU members under existing European Markets Infrastructure Regulation and Data Protection Directives could limit the ability of authorities to construct a picture of pan-European risk exposures. Similarly, restricted cross-border sharing of clients' data may jeopardize the conduct of business and risk management by private firms. Banks will likely face higher costs from having to duplicate data processing capabilities in various jurisdictions.

Forthcoming Europe-wide cybersecurity protocols will also be affected. The EU Directive on Security of Network and Information Systems is expected to take effect before the United Kingdom leaves the European Union. A new framework for collaboration in this area will need to be negotiated.

Transitional Challenges

The transition to a post-Brexit world needs to be carefully managed to minimize disruption in market services and activities and maintain a sound and effective supervision of financial activities. The United

Box 1.3 *(continued)*

Kingdom and the European Union do not currently qualify as "third countries" vis-à-vis each other and hence cannot begin the formal application process to seek third-country regulatory equivalence.

Banks' uncertainty about the requirements of their new regulators is likely to rise temporarily. Over the years, banks have invested heavily to develop internal risk models that are accepted by their current regulators. Relocation to a new jurisdiction will bring some uncertainty about how quickly these models can be reviewed and accepted by the new regulator.

Market liquidity in government debt markets could be temporarily curtailed. Several U.K.-based banks provide critical primary dealer functions in the sovereign debt market. Because uncertainty and operating costs will likely increase during the transition period, many banks may opt to exit or scale back the primary dealer business, leading to costlier and less efficient markets until new players enter.

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