INTERNATIONAL MONETARY FUND

The Role of Indicators in Guiding the Exit from Monetary and Financial Crisis Intervention Measures—Background Paper

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I. INTRODUCTION [1]

1. **As crisis-related intervention measures have taken place on several fronts and targeted distinct policy objectives, deciding on the appropriate timing and sequencing of unwinding will be challenging.**[2] Moreover, these decisions will require particular attention to communication. Therefore, identifying relevant indicators for the unwinding of each specific measure, sharing the authorities' views on these indicators with market participants, and yet refraining from pre-committing to a rigid course of action, would help smooth the exit process and avert any disruptive market impact. In this note, we identify a possible list of indicators, which by no means is comprehensive, but could guide the authorities through the exit process.

II. AN INDICATIVE LIST OF INDICATORS

2. **The indicators that could guide the exit process can be broadly grouped in three areas**:[3]

- ***Macroeconomic Indicators.*** Macroeconomic stimulus should only be withdrawn when there is firm evidence of a self-sustaining recovery. Core indicators in making this judgment would include (i) GDP growth; (ii) private domestic demand growth; (iii) unemployment rates; (iv) capacity utilization rates; (v) breakeven inflation rates;[4] and (vi) consumer price inflation.

- ***Financial Indicators (Prices).*** Given their higher frequency nature, these indicators can provide both a sign of current market stress and a forward looking signal about macroeconomic prospects. Commonly used measures include (i) the spread between LIBOR and overnight interest rate swaps (OIS); (ii) VIX index; (iii) corporate CDS

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[1] This paper has been prepared, as background to the Board Paper on "Exit from Crisis Intervention Policies", by Vincenzo Guzzo and Serkan Arslanalp with inputs from Cesar Arias, Samer Saab, Brenda González-Hermosillo, Heiko Hesse, and Etienne Yehoué.

[2] This paper draws on the conclusions of the previous Board Paper on "Crisis-Related Measures in the Financial System and Sovereign Balance Sheet Risks" (IMF, July 2009; http://www.imf.org/external/np/pp/eng/2009/073109.pdf) and the IMF High-Level Conference on "Unwinding Public Interventions in the Financial Sector" (December 2009; http://imf.org/external/np/seminars/eng/2009/unwinding/index.htm).

[3] The separation between price and quantity indicators is aimed at emphasizing the role of the latter, often downplayed in the assessment of the crisis-related intervention. From an analytical standpoint, quantity indicators are often a function of price indicators (for instance, capital-asset ratios, described as quantity indicators, depend on the value of the assets, which is itself a price indicator).

[4] This is the difference between the yield on a 10-year benchmark nominal bond and a 10-year benchmark inflation-linked bond. Alternatively, survey-based measures of inflation expectations may be used.

spreads; (iv) emerging market bond spreads; (v) sovereign CDS spreads; and (vi) yield curves.[5]

Table 1. Some Relevant Financial Indicators to Guide Exit From Crisis-Related Intervention Measures

Goal/Intervention	Financial Indicators (price)	Financial Indicators (quantity)
Unwinding liquidity support	LIBOR-OIS Spreads VIX Index High Yield and Investment Grade Corporate CDS Spreads EM External Debt Market Spreads	Loans to the Private Sector Fed and ECB utilization of support facilities Banks' capital
Terminating purchases of public and private securities	VIX Index High Yield and Investment Grade Corporate CDS Spreads Selected Sovereign CDS Spreads Yield Curves	Loans to the Private Sector Fed and ECB utilization of support facilities
Lifting bank funding guarantees	LIBOR-OIS Spreads High Yield and Investment Grade Corporate CDS Spreads Selected Sovereign CDS Spreads Yield Curves	Global government guaranteed vs. un-guaranteed issuance volume Fed and ECB utilization of support facilities U.S. and EU financial institutions' debt maturity profile Banks' capital
Lifting blanket deposit insurance	LIBOR-OIS Spreads VIX Index Yield Curves	Loans to the Private Sector Banks' capital
Divestment of financial institutions	LIBOR-OIS Spreads VIX Index Selected Sovereign CDS Spreads Yield Curves	Global government guaranteed vs. un-guaranteed issuance volume Fed and ECB utilization of support facilities Banks' capital

[5] Yield curves should be treated with care, as their slopes reflect both a term premium and an expectation term. Therefore, a steepening of the yield curve may not necessarily support the case for exit. This is likely to become more important as doubts about fiscal sustainability rise.

- ***Financial Indicators (Quantities).*** These can provide important information on the extent to which normal market functioning is being re-established, although broader attention to lending surveys and credit growth is also important.[6] These indicators include (i) loans to the private sector (non-financial corporations and households); (ii) Fed and ECB utilization of support facilities;[7] (iii) global government guaranteed vs. un-guaranteed issuance volume; and (iv) the U.S. and EU financial institutions' debt maturity profile.

3. **In Table 1, we map financial indicators according to their relevance in assessing the main crisis-intervention measures.**

III. The Use of Indicators in Assessing the Exit Process

4. **In using macroeconomic and market indicators, the following considerations could be taken into account:**

- ***Policy Objectives.*** In cases where severe market dysfunctions occurred and intervention measures intended to provide back-stop facilities, indicators of market conditions could play a significant role in deciding on unwinding. In contrast, exiting from other policy actions such as interest rate cuts, purchases of public securities, and fiscal policy stimulus packages requires a more comprehensive review of the overall macroeconomic conditions.

- ***Identification***. Since it may be hard to identify what is driving the current tentative rebound towards financial stability and economic expansion, namely the intervention measures or a sustained recovery in underlying activity, some indicators can help inform this debate. For example, on the macroeconomic front, private domestic demand may provide more useful insights on the underlying strength of the economy than gross domestic product or other economic activity indicators.

- ***Timing of Exit.*** In certain segments of financial markets, authorities may not need to wait for a reversion towards pre-crisis situations before they start the exit. Further, a return to pre-crisis levels might not be an appropriate objective as it might indicate exceptional liquidity conditions, more than evidence of genuine recovery. In addition, the signal value of many financial indicators may be constrained by their usually limited availability of historical data. In this context, the timing of exit should be

[6] Focus is on central banks of large advanced markets where most of the crisis-intervention measures took place.

[7] In particular, utilization of facilities that require penal prices in their use (government guarantees on bank debt and purchases of private securities) can be a good indicator of markets' demand for liquidity facilities.

determined by a broad-based improvement across a comprehensive set of indicators rather than by a mean reversion towards specific thresholds or triggers.

- ***Communication*.** Conditioning exit explicitly on a clear set of indicators would improve transparency but limit flexibility, which may be important given the uncertainties surrounding the choice of the indicators. A careful balance will therefore be important.

IV. The Informational Content of Indicators at Present

5. **As shown in the box and charts below, the various indicators depict different levels of effectiveness of the intervention measures undertaken so far.** Also, important differences emerge across countries and regions, suggesting that exit should be based on country-specific circumstances and conditions. More specifically:

- **Financial Indicators (Prices):** Various indicators based on raw market data suggest that global market conditions have generally improved since early 2009. LIBOR-OIS spreads are back to pre-crisis levels. The VIX index has fallen significantly since end-2008. There has been a noticeable improvement in bond and CDS spreads, although spreads in some advanced countries have exhibited substantial widening. Further, some of these indicators are still showing stress, as manifested by their different levels of volatility.[8]

- **Financial Indicators (Quantities):** These indicators point to continued weakness: loans to the private sector (corporate and household) are still falling, and measures of the debt maturity profile for U.S. and EU financial institutions suggests re-financing risk through 2012. Moreover, although bank capital ratios have improved, their leverage ratios remain high (i.e., 14 times tier 1 capital for the U.S. and 31 times for European banks).

- **Macroeconomic Indicators:** Available data do not also advocate for a broad-based withdrawal of stimulus or financial market support. The recovery still appears sluggish, especially in the advanced economies, with output and employment gaps remaining large and projected to widen through 2010.[9] As a result, inflation pressures should remain subdued. Moreover, as outlined in the most recent World Economic Outlook, there is little evidence as yet that private demand is self-sustaining. Care, of

[8] A detailed technical analysis can be found in González-Hermosillo and Hesse (2009), "Global Market Conditions and Systemic Risk," IMF Working Paper WP/09/230.

[9] The use of growth rates should be seen in conjunction with output gaps. There is no reason to tighten at the first sign of growth, when the output gap is still deeply in negative territory.

course, is needed in such judgments given the lagging nature of most macroeconomic indicators.

Box 1. What Are the Indicators Saying at Present?

Financial Indicators—Prices

- ***LIBOR-OIS Spreads.*** Back to pre-crisis level or close to it.
- ***VIX Index.*** Significant improvement since Q408, but still high.
- ***High Yield and Investment Grade Corporate CDS Spreads.*** Significant improvement since Q408.
- ***EM External Debt Market Spreads.*** Noticeable progress.
- ***Selected Sovereign CDS Spreads.*** In contrast with other indicators, some of them have started widening again lately.
- ***Yield Curves***. Still steep with historically low short-end yields and relatively long-end yields. Short-end swap spreads remain wider than long-end ones, although this curve has now moved closer to positive slope.

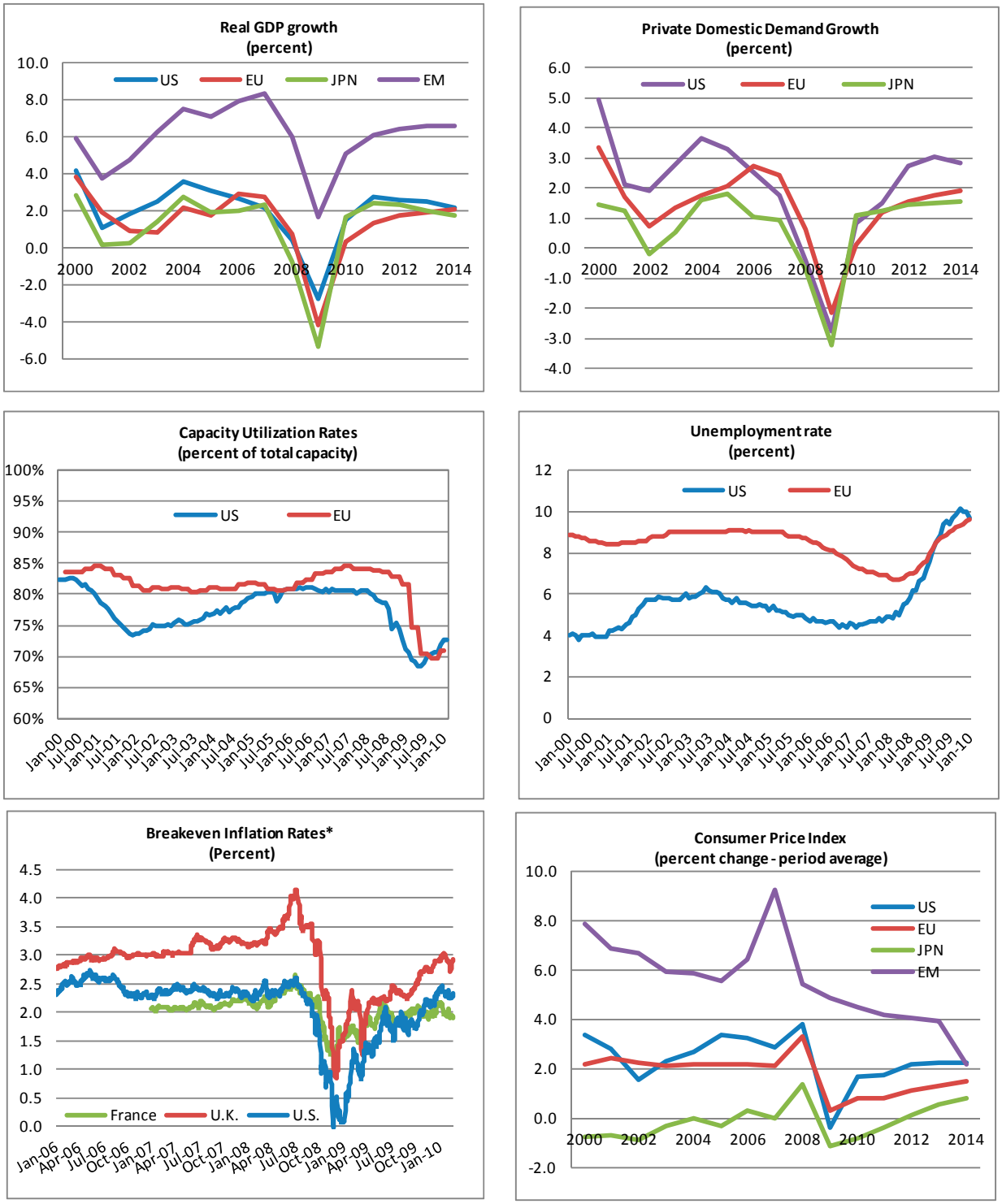
Financial Indicators—Quantities

- ***Loans to the Private Sector (Non-Financial Corporations and Households).*** Stocks are still falling.
- ***Fed and ECB utilization of support facilities.*** Mixed outlook.
- ***Global government guaranteed vs. un-guaranteed issuance volume.*** Broadly stable at low levels.
- ***U.S. and EU financial institutions' debt maturity profile.*** Significant re-financing risk through 2012.
- ***Banks' capital.*** Broadly the solvency of the banking systems has improved, but their leverage ratios remain high.

Macroeconomic Indicators

- ***GDP Growth and Inflation.*** For advanced markets, below-trend growth through 2014 and modest rise in inflation. For emerging markets, strong recovery with continued decline in inflation.
- ***Breakeven Inflation Rates.*** Around long-term average.
- ***Unemployment Rates.*** Still rising, but at decreasing rates.
- ***Capacity Utilization Rates.*** Stabilizing at low levels.

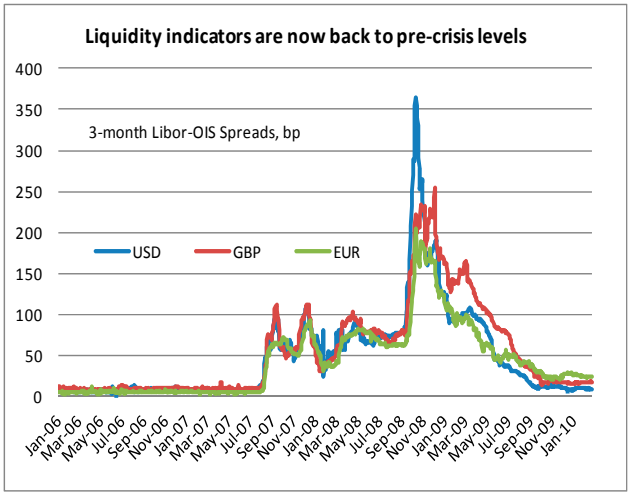
Figure 1. Macroeconomic Indicators

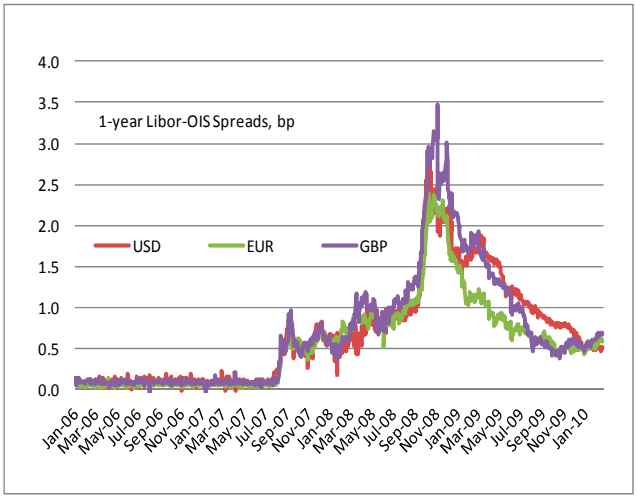


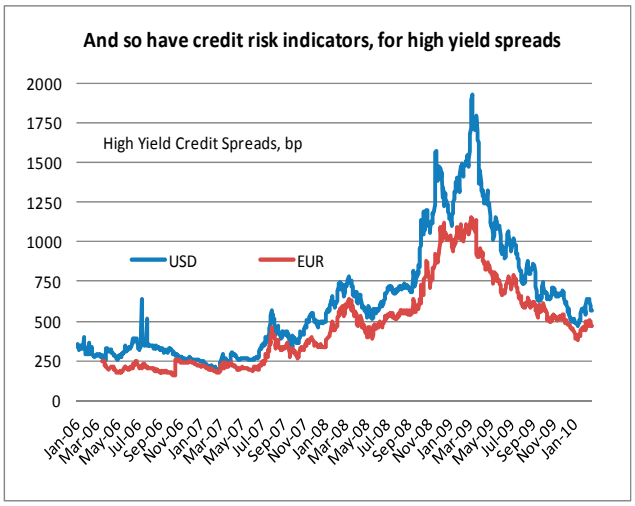
*Difference between the yield on a 10-year benchmark nominal bond and the yield on a 10-year benchmark inflation-linked bond

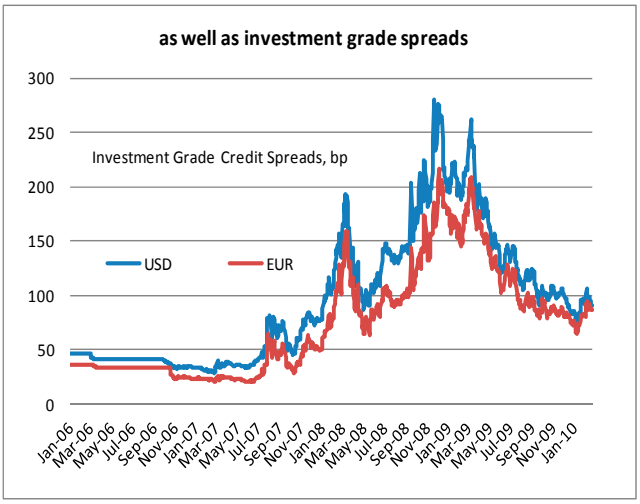
Source: IMF World Economic Outlook, Bloomberg , and IMF Staff Calculations

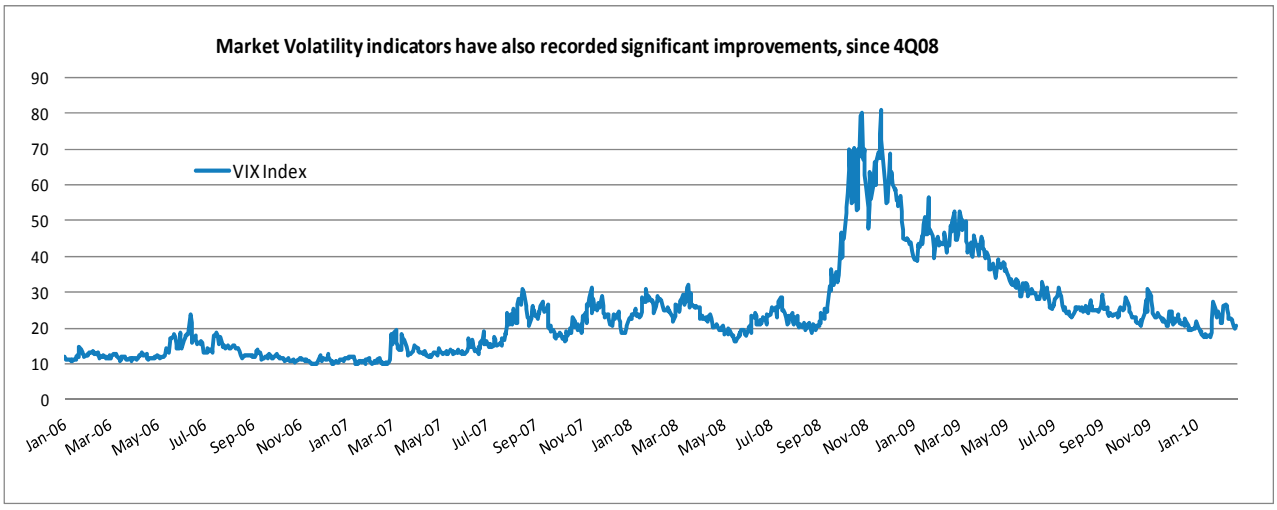
Figure 2. Financial Indicators (Prices)





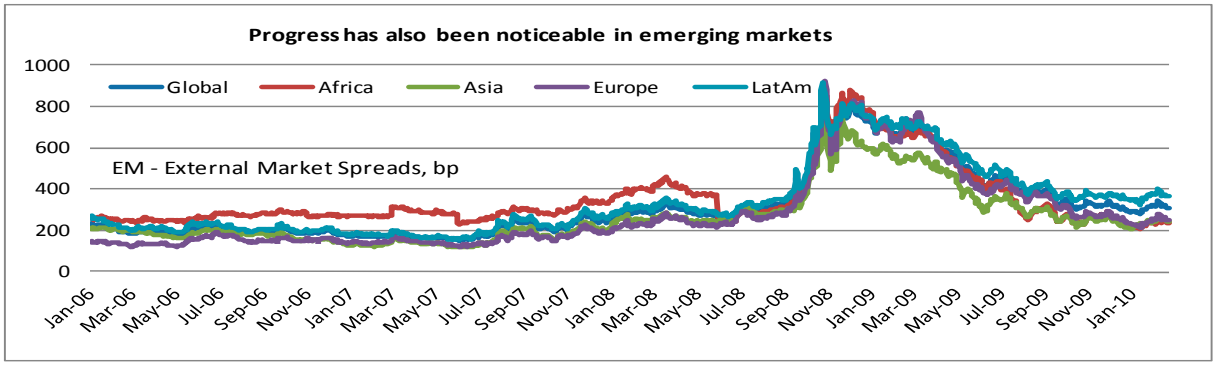


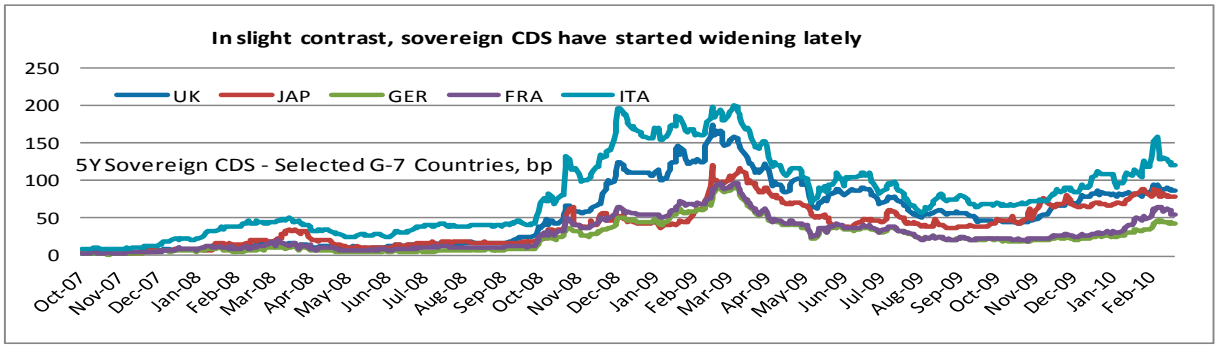


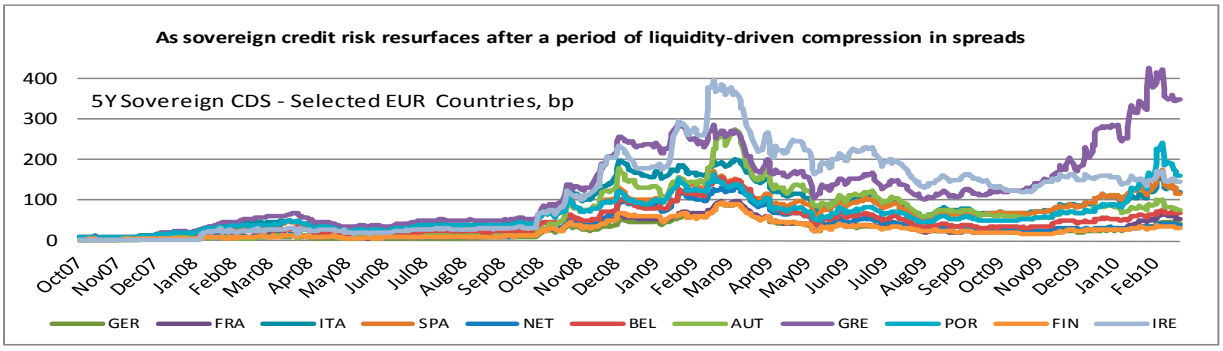


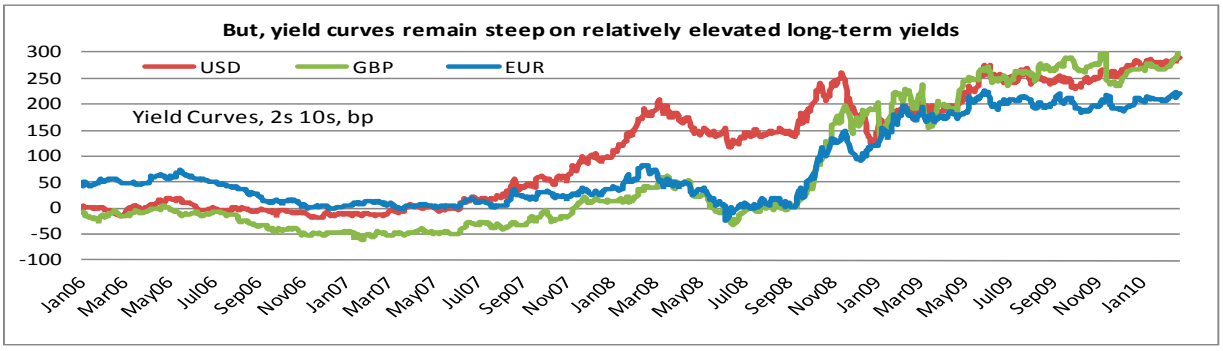
Source: Bloomberg, IMF Staff Calculations

Figure 2. Financial Indicators (Prices) – Continued



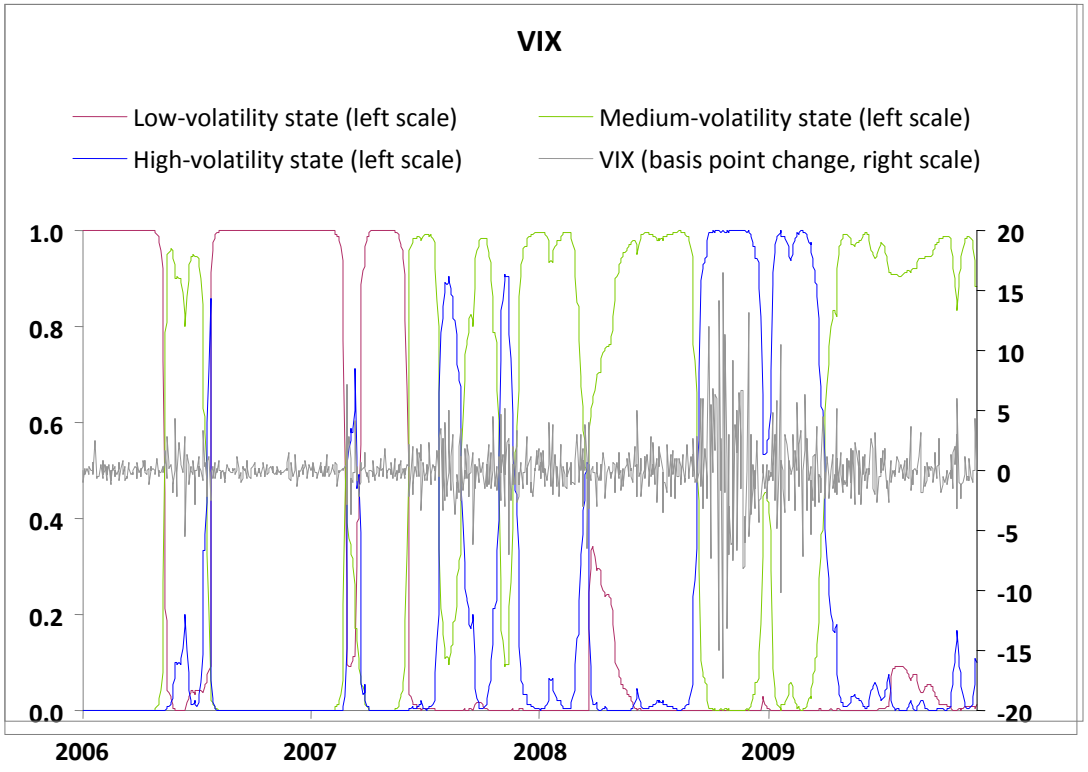


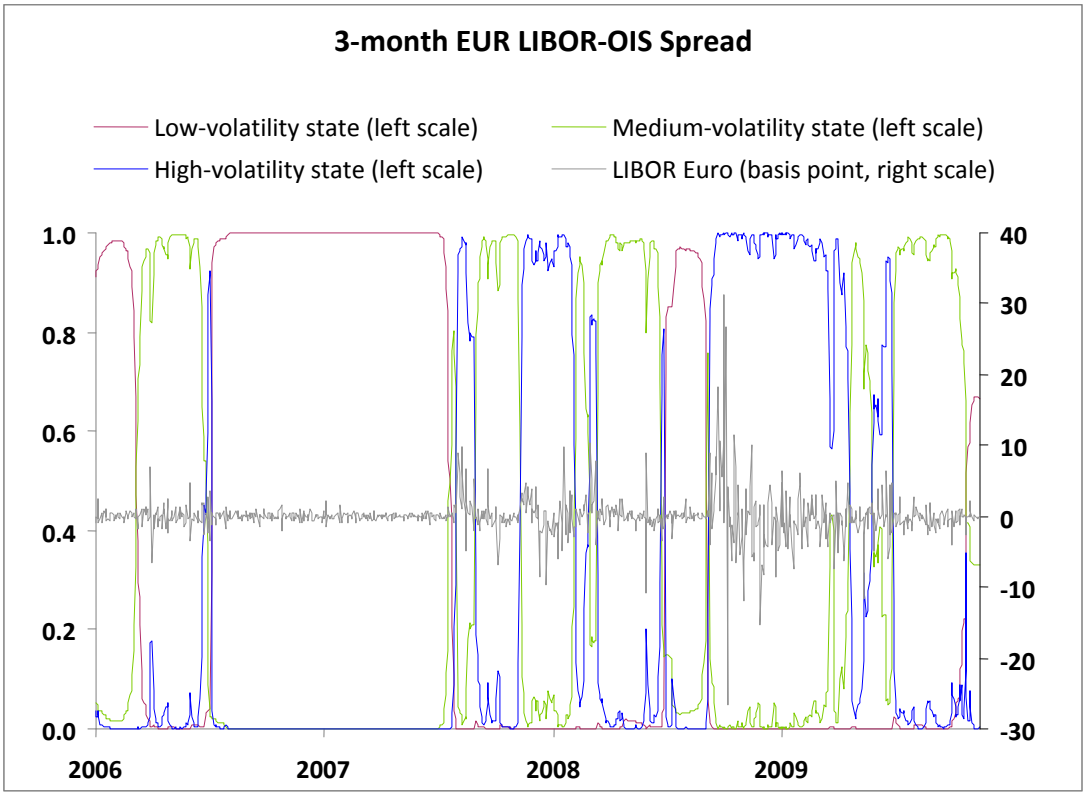




Source: Bloomberg, IMF Staff Calculations

Figure 2. Financial Indicators (Prices) -- Continued





Source: Bloomberg, IMF Staff.

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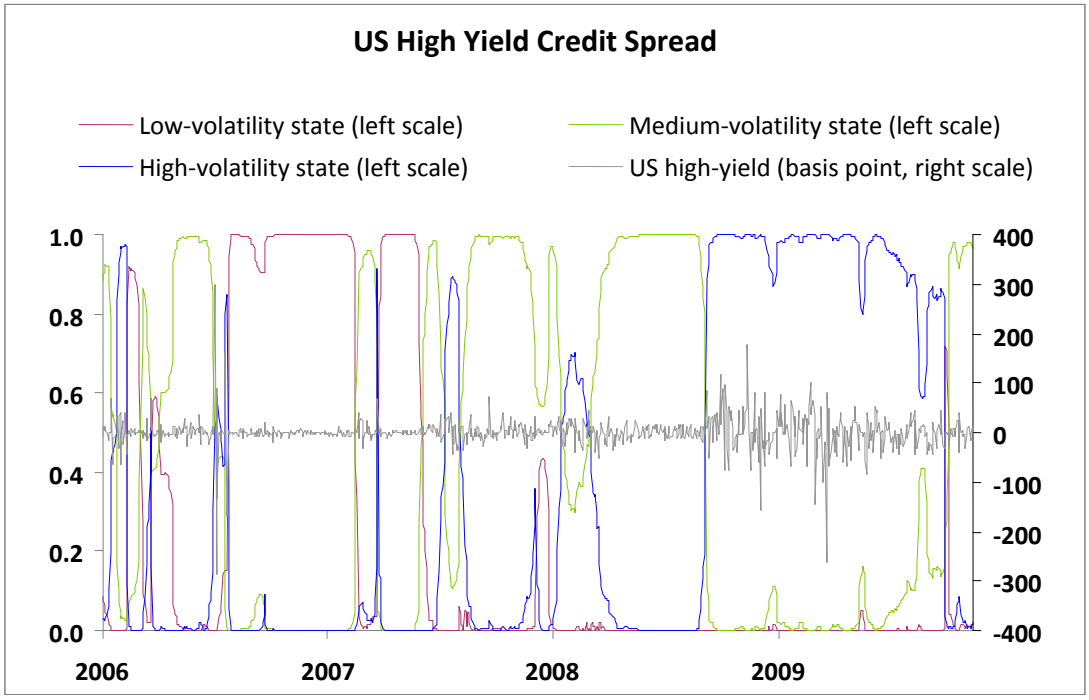
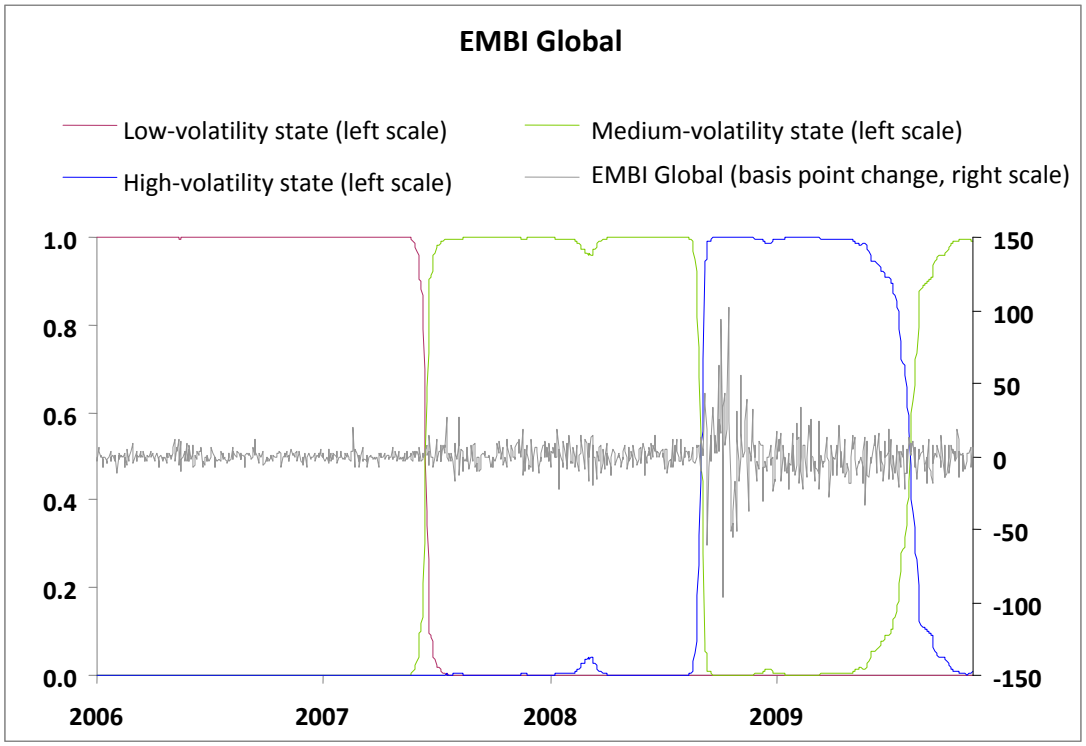
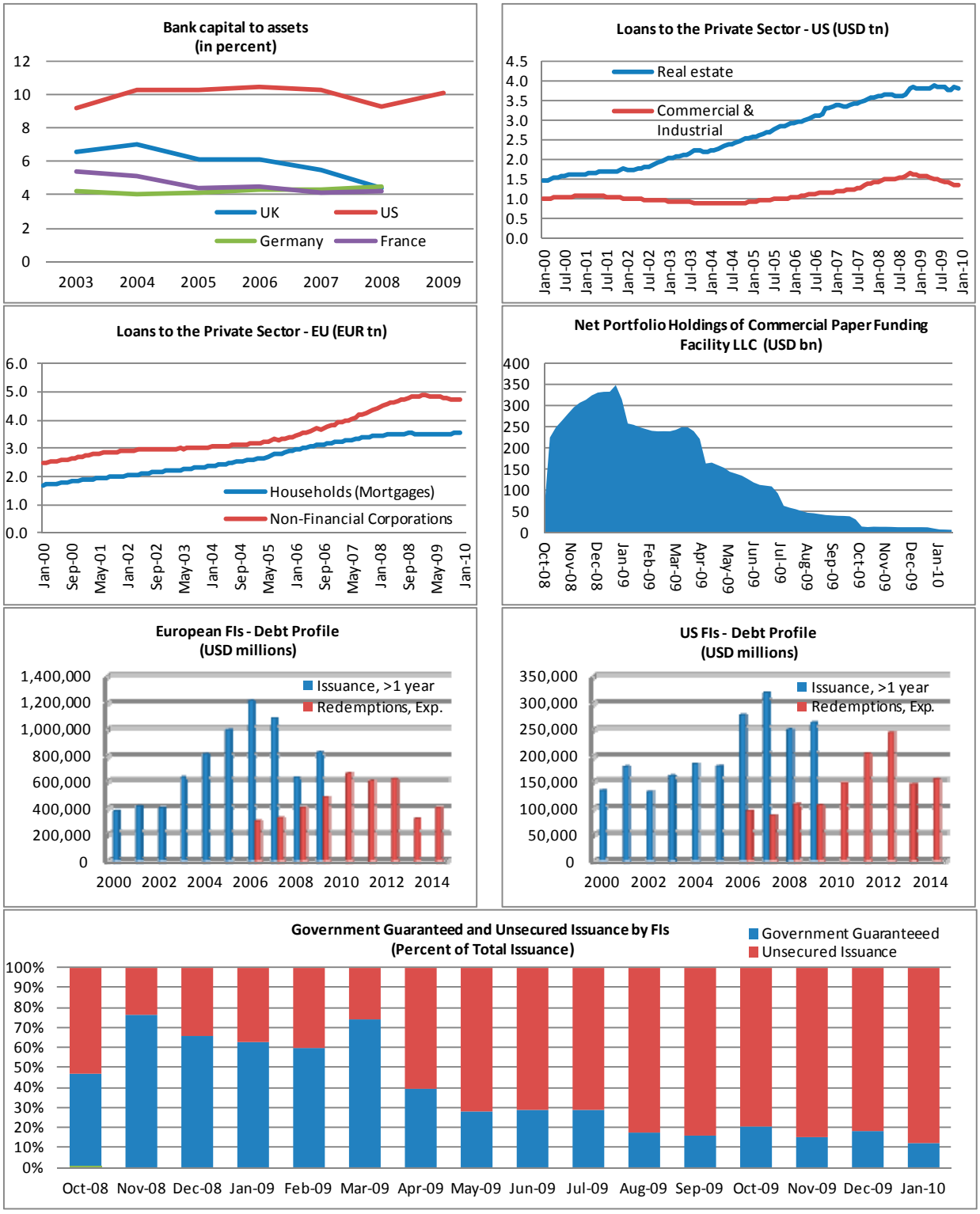




Source: Bloomberg, IMF Staff.

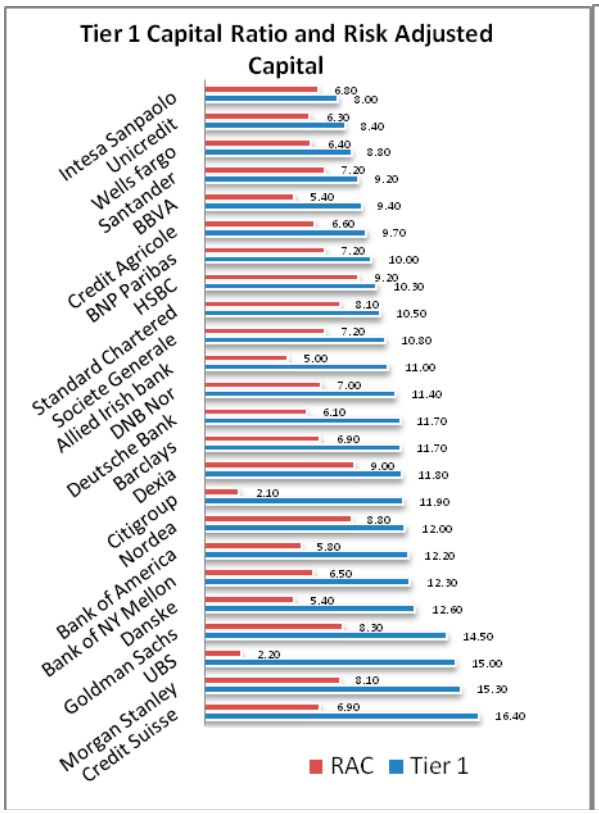
Figure 3. Financial Indicators (Quantities)

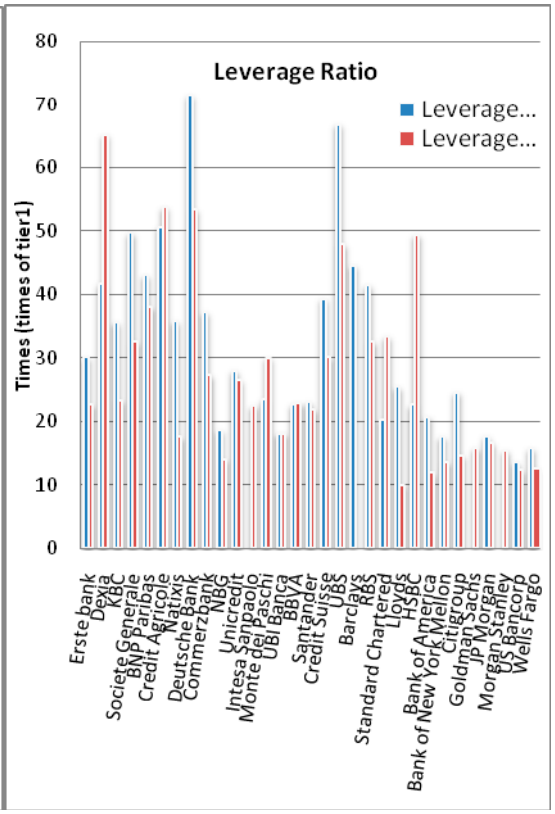


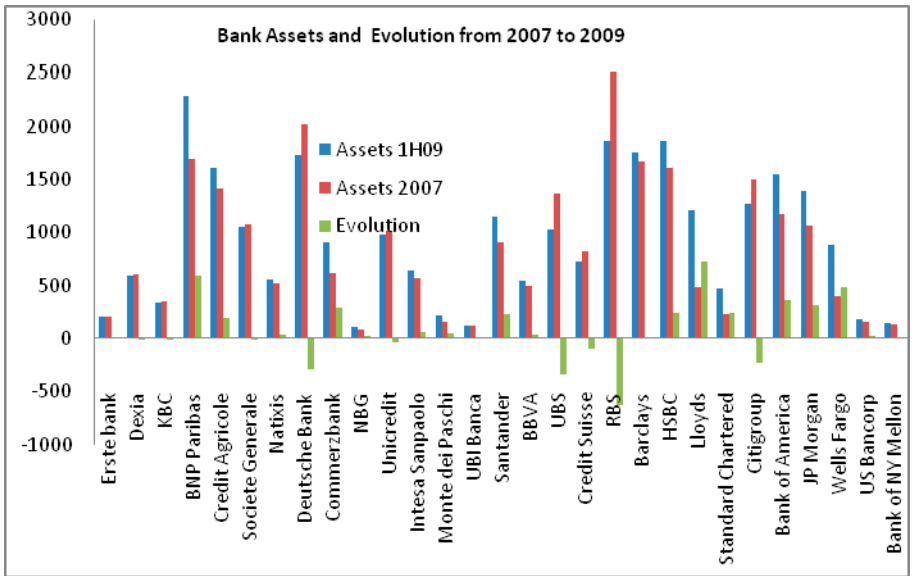
Source: IMF Global Financial Stability Report, National Authorities, Dealogic, and IMF Staff Calculations

Figure 3. Financial Indicators (Quantities) -- Continued

Banks' Tier 1 Ratios, Leverage Ratios, and Assets



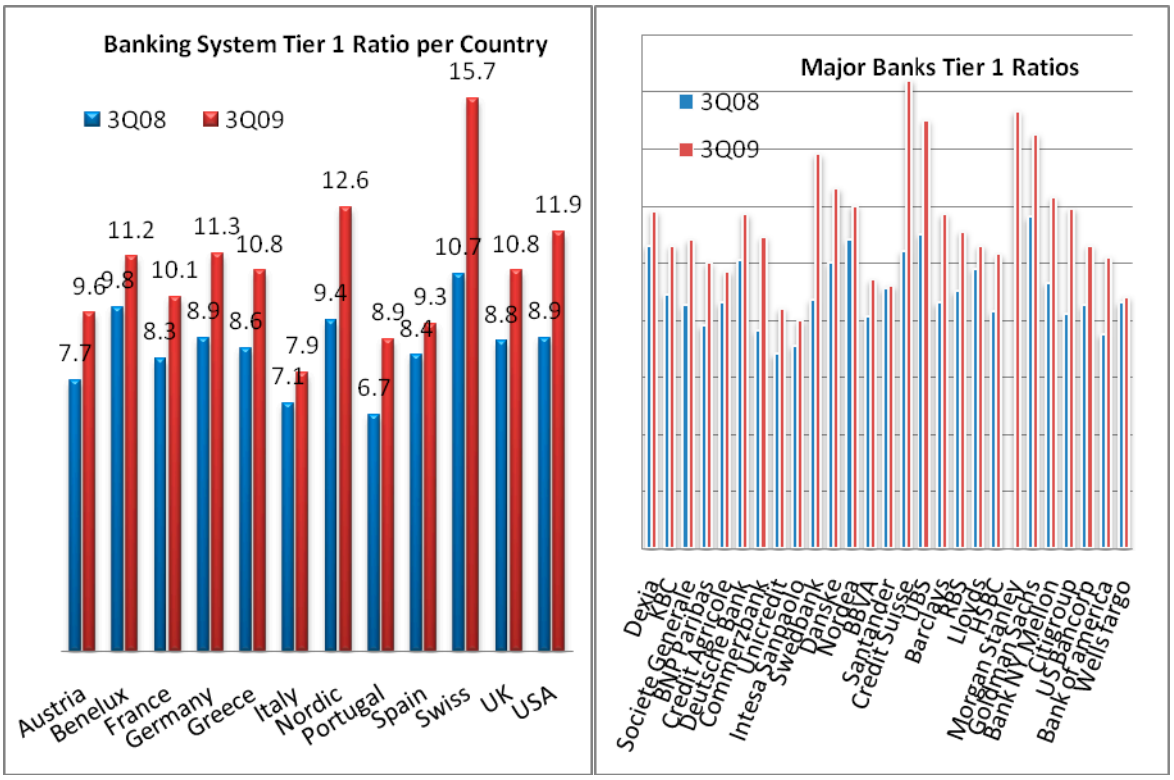


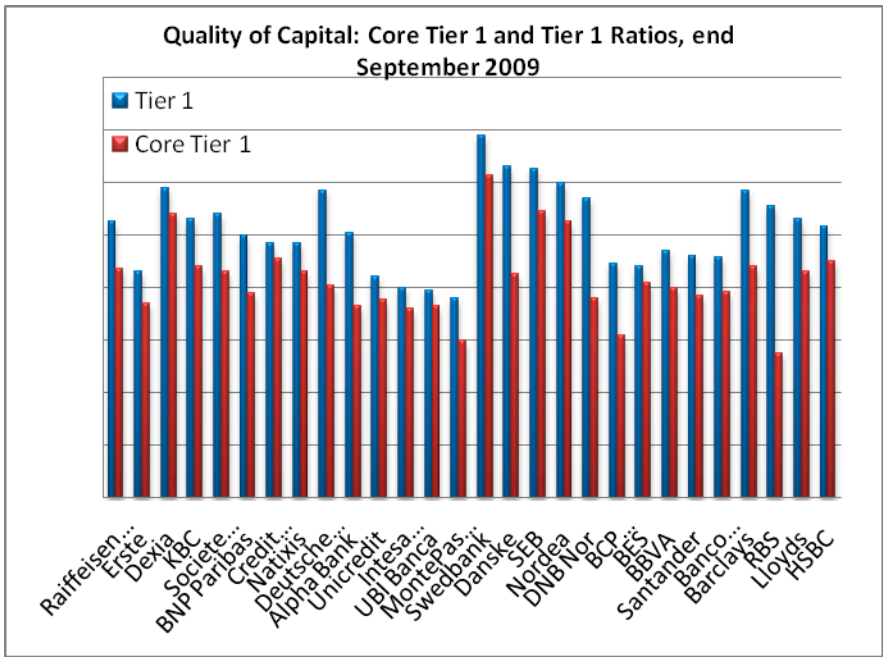


Source: Company Reports, Standard & Poors, and IMF Staff Calculations.

Figure 3. Financial Indicators (quantities) – Continued

Evolution of Tier 1 Ratio and Quality of Capital





Source: Company Reports, Standard & Poors, and IMF Staff Calculations.