# FOURTH CHAPTER

# From banking crisis to debt crisis and back

### The key points at a glance

**European banking system at risk again**

Since summer 2011 the European banking system is experiencing another crisis of confidence, leading politicians to feel they needed to respond by taking extensive, coordinated steps. The Core Tier 1 capital ratio for the major European banks is to be raised to 9 % and an extraordinary buffer imposed for government bonds. Banks that do not meet these requirements by mid- 2012 will be recapitalized by the respective country or by the European Financial Stability Facility (EFSF). In principle, significantly higher capital buffers are a move in the direction of a system less prone to instability. However the danger of deleveraging and selling pressures on government bonds cannot be excluded. At the end of the day, attempts to stabilize the financial system will only succeed if confidence in the debt of the Eurozone countries is restored.

**Sovereign debt crises: a long-term Eurozone regulatory and governance framework**

We can derive guiding principles for an effective Eurozone regulatory and governance framework from the experiences in past debt crises and the debate on the international financial architecture. The framework should include: Firstly, an insurance element for countries with liquidity problems that have to prequalify for insurance services by behaving well; secondly, further support based on strict conditions only; and thirdly, a transparent, predictable and credible mechanism to involve the private sector in solvency problems. The German Council of Economic Experts proposes a regulatory and governance framework that meets these requirements: Countries with a debt-to-GDP ratio of less than 60 % will in the event of liquidity problems prequalify for a loan from the European Stability Mechanism (ESM); a debt-to-GDP ratio of between 60 % and 90 % means that access to the ESM comes under strict conditions; if the figure exceeds 90 % access is only possible with private sector involvement. This regulatory and governance framework is intended to function as a prevention by setting predictable rules for liability and market discipline. It can therefore not be introduced until after the sovereign debt crisis has been overcome – as a medium-term strategy.

**Dealing with systemically important financial institutions**

A far-reaching international supervisory and settlement regime covering banks with cross-border activities must be set up to handle systemically important financial institutions (SIFIs). Reforms in this segment to date have been inadequate. The goal must therefore continue to be creating an effective supervisory and restructuring regime at least for Europe that can wind up banks with cross-border activities, on the one hand, and entails a clear cost sharing rule, on the other. Given the inadequate institutional reforms the resilience of the SIFIs must be improved still further. Moreover, to date no success has been achieved nationally or supranationally in dampening SIFIs facing the wrong incentives – by a Pigouvian tax (bank levy) – and the public sector has not been protected by external buffers (restructuring funds). Clearly higher internal buffers must thus be put in place.

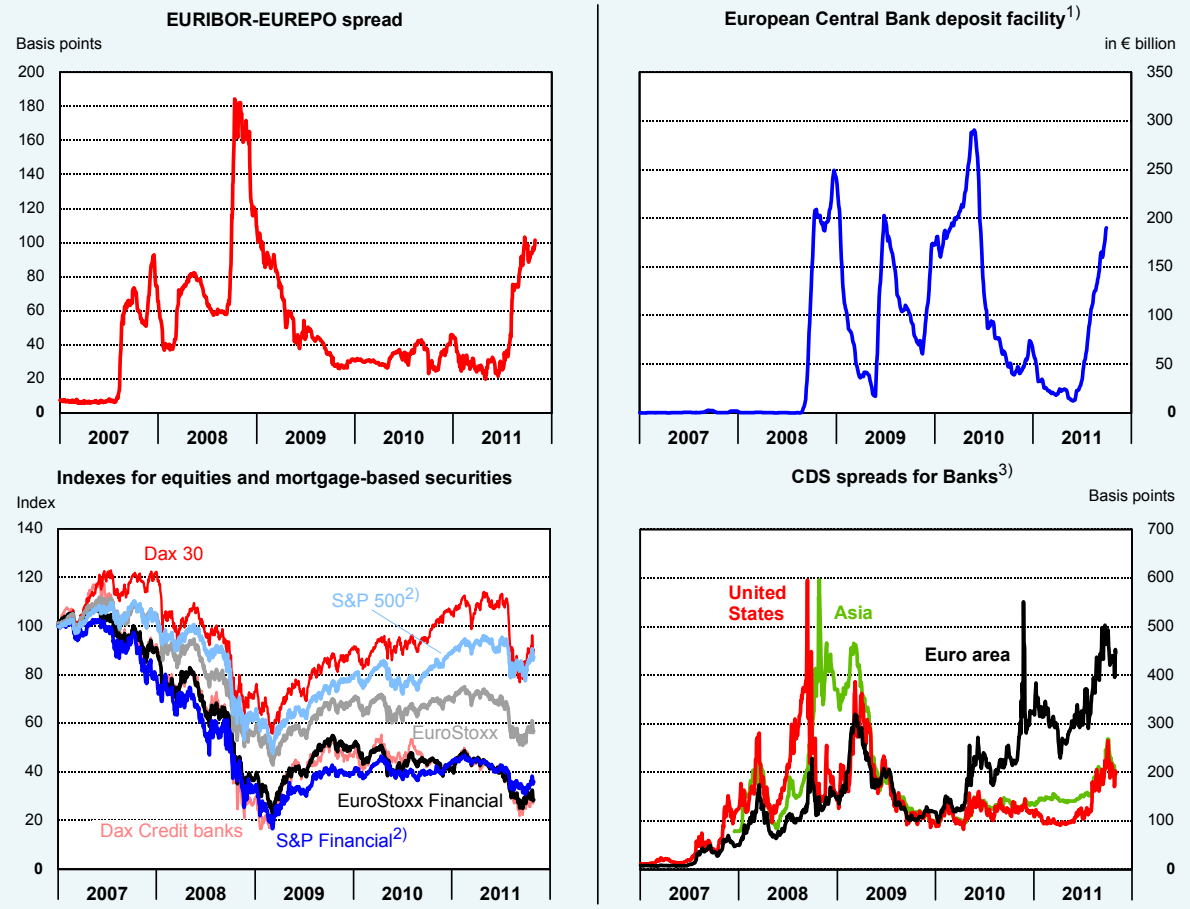
Since from the macroeconomic viewpoint there is a clear advantage to opting for higher capital requirements, the German Council of Economic Experts advocates raising the risk-weighted capital ratio for SIFIs to 20 % and gradually introducing a leverage ratio (according to the Basel III definition) of 5 % through 2019 at the latest. The leverage ratio would also help sever banking from debt crises as government bonds would be included like all other claims at the full risk weighting.

## I. The European banking system back under threat

**219.** Following a phase of relative calm, the situation in the European banking system since mid-2011 has once again become extremely tense. Indicators that showed the acute uncertainty in the financial markets as early as the beginning of the financial crisis were once again signalling the alarm. The otherwise highly liquid interbank markets were drying out, as banks were no longer prepared to lend each other money (Chart 34, upper l.). Instead, they preferred low-interest overnight deposits with the European Central Bank (ECB) that were safe (Chart 34, upper r.). US banks and money-market funds had already withdrawn deposits from European banks and thus rendered refinancing in US dollars so difficult that the ECB and the Federal Reserve felt themselves forced to re-activate emergency measures to secure liquidity provisioning through US-dollar/euro swaps. The stock market indices of European banks collapsed (Chart 34, below l.) and credit default insurance for bank stocks showed a clear rise in default risk for European banks (Chart 34, below r.).

Chart 34

**International financial market indicators**




1) Gliding 25-day average.– 2) Standard & Poors stock indexes for companies and/or financial institutions.– 3) Evenly weighted average premiums on senior CDS (credit default swaps) with a maturity of five years.

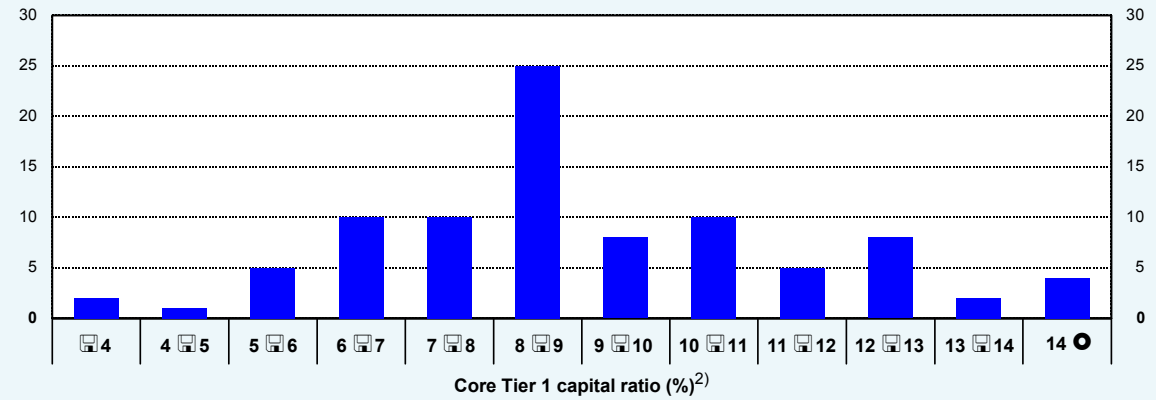
Sources: ECB, Thomson Financial Datastream

**220.** The renewed doubts in banks' stability were triggered by the spreading **Eurozone debt crisis**. In July 2011 the situation in Greece became so acute that it was unclear whether the quarterly assessment by the Troika (a commission made up of experts from the European Union, the ECB and the International Monetary Fund [IMF]), would come to positive conclusions and there was increased speculation on a disorderly default on payments. The months of negotiations between banks and the key creditor countries on a substantive participation by the private sector in the further financing for Greece fuelled uncertainty as the rating agencies announced that they would rate even voluntary debt rescheduling as a selective default. The ECB had announced that it would no longer accept government bonds from a country in selective default for refinancing purposes, which would have led to the direct insolvency of Greek banks. The resolutions of the Eurozone heads of state and government of 21 July 2011 headed off this scenario at the last minute (items 126 ff.). The relief of the financial market players was short-lived, however, as in mid-August the situation was once again aggravated by a renewed bout of panic responses.

**221.** Ironically, the newly founded European Banking Authority (EBA) has just conducted comprehensive **stress tests** (on 15 July 2011) on the European banking system and issued an overall very favourable report. The stress tests confirmed that the overwhelming majority of banks had robust capital ratios. Most of the 90 banks tested had Core Tier 1 capital ratios of well above the 5 % called for in the test (Chart 35); 25 banks posted ratios of 8 – 9 %; 19 banks had ratios over 11 %. However, in these tests all government bonds from Eurozone countries that were held on the banking book until final maturity were excluded from write-downs. Only government bonds held in the trading book or in the banking book as available-for-sale were subjected to the stress test. All in all, market players felt the stress tests were far too mild. The EBA thus failed to reduce nerves in the market.

Chart 35

**Capitalization of European banks in the 2011 EBA bank stress test**[1)]




1) Own calculations.– 2) Ratio of Core Tier 1 capital to risk-weighted assets.

Source of basic data: EBA



**222.** The **uncertainty was further fostered** by rumours that the IMF estimated the European banking system's recapitalization need to be as much as € 200 billion. In fact, the IMF had come up with such a figure for write-downs in its Global Financial Stability Report 2011,

applying the write-down instalments expected in the market for credit default insurances on government bonds from Belgium, Greece, Italy, Ireland, Portugal and Spain held on banking book (IMF, 2011a). The write-downs the IMF had computed were often and wrongly quoted as being the banks' estimated recapitalization requirement. However that would be the sum still required after the write-downs have been made on the existing equity in order to achieve the necessary capital ratio. Since most banks have a capital buffer that lies above the minimum capital requirement and thus already absorbs part of the write-downs, the capital shortfall is in fact lower than the write-downs. Calculating the scale of the capital shortfall thus depends crucially on the **discounts** on the claims **assumed** in the stress tests, on the one hand, and the scale of the **target capital ratio**, on the other.

**223.** How changes in these two variables impact on the recapitalization requirement can be seen from a **simulation** based on the balance-sheet items as released by the EBA in July 2011. The calculations highlight that a write-down of 50 % on all Greek bonds, assuming a capital requirement of 5 %, would have caused a relatively small capital shortfall in European banks of about € 15 billion (Chart 36, above). By contrast, the capital shortfall would rise to about € 106 billion if the capital ratio required were raised to 9 % for example. By contrast, if all claims from governments were valued at market price and thus all write-downs on allocations permitted, European banks' recapitalization requirement (assuming a Core Tier 1 capital ratio of 9 %) would be about € 137 billion. These simulations show that the capital ratio required has a far stronger impact on the scale of the capital shortfall than the differences in the valuation of government bonds.

**224.** It became clear in the late summer that confidence in the European banking industry was rapidly dwindling, and the EBA was commissioned to conduct an EU-wide recapitalisation exercise as the basis for breaking out of the downward spiral. On 26 October 2011 the Eurozone heads of state and government agreed a comprehensive package to stabilize the European Monetary Union, one central pillar of which was a temporary tightening of banking regulation. The so-called **banking package** was designed to appreciably boost the capitalization of European banks: Firstly, the minimum capital requirements were raised and, secondly, an extraordinary buffer introduced for claims from governments.

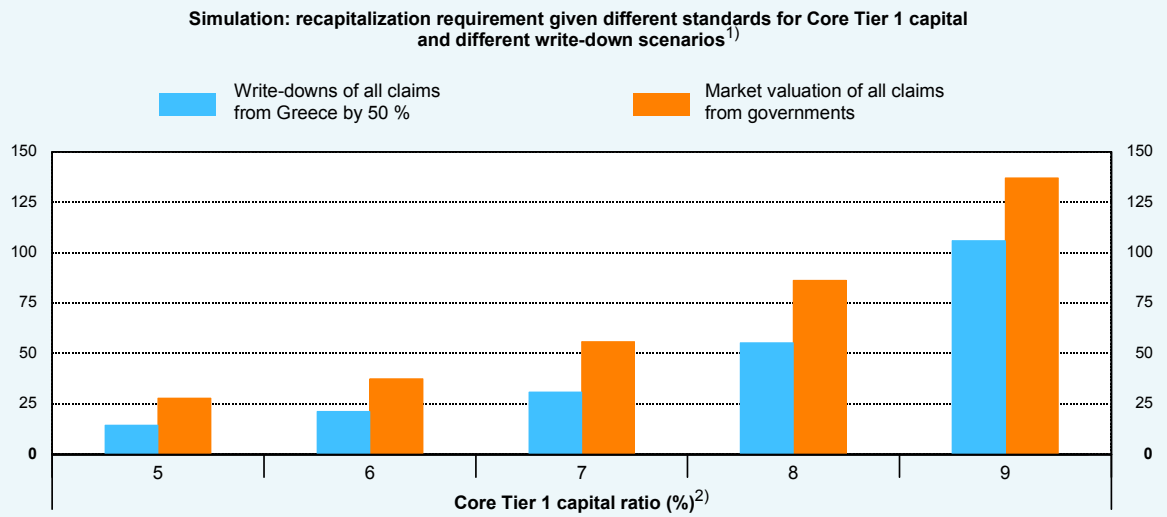
In fact, the **market valuation** of claims from governments held on banking book was expanded and the Core Tier 1 **capital requirement raised to 9 %**. The EBA refrained, however, from assuming a macroeconomic stress scenario and instead exclusively modelled the risks on claims from governments. Owing to the preliminary reports from banks, a first estimate of the capital shortfall was made; the definitive, audited calculations will first be available in November 2011. The capital shortfall as computed as at 30 September 2011 has to be covered by 30 June 2012. All banks with a recapitalization requirement have until 25 December 2011 to submit a plan of measures to their national supervisory authorities on how they intend to cover the capital shortfall by the end of June 2012. They are called on to achieve this primarily by injecting fresh private capital or by cutting dividends and bonuses;

by contrast, they are to avoid reducing risk assets or positions held in government bonds. Should a bank not succeed by June 2012 in closing its capital shortfall it will be compulsorily recapitalized using public capital. Should this recapitalization put an excessive strain on the state or expose it to stronger pressure from the financial markets, then it can resort to EFSF means. Only the Greek banks will be directly recapitalized by the EFSF as part of the debt 'hair cut'.

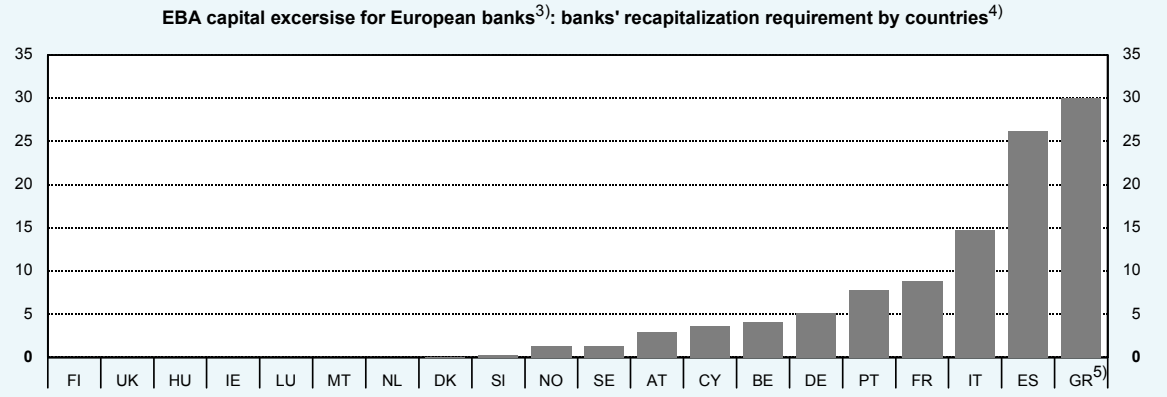
Chart 36

**European banks' recapitalization requirement**

Euro billion




1) Simulation based on data that the EBA released in July 2011 as a part of the bank stress test. The recapitalization requirement has been calculated analogously to the EBA capital excersises für European banks in October 2011 using the data for 70 banks and consists of two components. The first component is the product of risk-weighted assets at the end of 2010 and 9 % minus the actual Core Tier 1 capital ratio at the end of 2010. The second component consists of a buffer that sets the claims from government held in the banking book at the market value in mid-September 2011 and must be non-negative.– 2) Ratio of Core Tier 1 capital to risk-weighted assets.




3) Preliminary results for 70 banks tested by EBA in October 2011; banks are expected to build these buffers by the end of June 2012.– 4) FI-Finland, UK-United Kingdom, HU-Hungary, IE-Ireland, LU-Luxembourg, MT-Malta, NL-Netherlands, DK-Denmark, SI-Slovenia, NO-Norway, SE-Sweden, AT-Austria, CY-Cyprus, BE-Belgium, DE-Germany, PT-Portugal, FR-France, IT-Italy, ES-Spain, GR-Greece.– 5) The recapitalization requirement of €30 billion corresponds to the sum that is foreseen in the framework of the EU and IMF programmes to support the Greek banks, and exceeds the recapitalization requirement computed by the EBA.



The EBA estimated the **capital shortfall** in the 70 banks considered (not factored in: 20 smaller banks that were included in the June 2011 EBA stress test) to total € 106 billion. Greek banks post the highest capital requirement, needing € 30 billion, followed by Spanish

banks at € 26 billion and Italian banks with € 15 billion. German and French banks require about €5 billion and around €9 billion respectively and thus comparatively little (Chart 36, below), in which context German banks could benefit from allocations from their stock of German government bonds.

**225.** All in all, the measures underlying the **bank package are to be welcomed** as they can contribute to augmenting confidence in the stability of the financial system. In particular, the decision to clearly raise the minimum requirements for Core Tier 1 capital to 9 % can be seen as a step in the right direction. These requirements should not be temporary but also remain in place after the acute crisis has passed. Capital buffers should in principle be established in good times and then be used in bad times to enable the bank in question to avoid a sudden worsening of requirements in the middle of a crisis. Moreover, a high capital buffer not only protects a bank against default; it is also the best protection against the public having to cough up to cover the losses. The widespread view that equity is expensive and should therefore only be used sparingly stems mainly from conflating a macroeconomic angle with a perspective on individual economic units (item 283).

Whether the banking package **achieves stabilization** will depend decisively on if, together with the other elements of the overall package (items 126 ff.), this suffices to overcome the crisis of confidence and risk premiums on government bonds drop again. Otherwise, the expansion in mark to market could be highly counterproductive. For if banks fear that government bonds will henceforth be constantly subjected to a new market valuation they will possibly have to make further write-downs and the obvious strategy then would be to sell debentures to try to sidestep this mechanism, which would pose a constant threat of uncertainty to the balance-sheet valuation.

The danger that the state intervention announced will incentivize the banks concerned to achieve the capital ratios by **deleveraging** has been clearly identified. The heads of state and government mention that the national supervisory authorities under the patronage of the EBA must ensure that "banks' recapitalisation plans do not lead to excess deleveraging" (European Council, 2011). How the supervisory authorities are to ascertain and punish an undue reduction in the proportion of debt is not said. To avoid the unpleasant intervention of government and given that it will hardly be easy precisely for banks with a large capital shortfall to raise private capital, they will be tempted to improve their capital ratios by reducing risk assets.

It thus remains to be seen whether the banking package has the desired effect. But there is at least the chance that it will terminate the self-reinforcing cycle of debt and banking crises and enhance system stability.

## II. The twins: banking crisis and debt crisis

**226.** There is more in common to systemically-important financial institutions (SIFIs) and sovereign states than might meet the eye. Firstly, there is no credible insolvency and restructuring proceeding for either. Secondly, in principle the notion of a **No Bail-Out** applies

to both: In the event of bankruptcy neither banks nor countries should be rescued by (other) governments and the costs borne by the (international) community. In the Eurozone there were deliberately no regulations covering how a systemic banking crisis should be handled in order to encourage banks to be cautious and to create "constructive uncertainty" on a bail-out: even if SIFIs can hope in the event of events to be rescued they can never be quite certain they will be. This residual doubt was meant to strengthen their discipline on risk. For Eurozone member countries, Article 125 of the Treaty on the Functioning of the European Union (TFEU) explicitly excludes a bail-out by specifying that no liability be assumed for a government's commitments. In the course of the financial and economic crisis it became clear in both cases, however, that this institutional frame was not credible.

**227.** The cost of a default by an SIFI or country is estimated to be so high that decisions makers will act **time inconsistently** and despite having announced there would be no bail-out will try to bail out banks and countries. A core problem of time-inconsistent economic policy is that it leads to pronounced **moral hazard behaviour**. Banks and their creditors anticipate the political time inconsistency and therefore assume higher risks in the expectation of a last-minute rescue. Governments, by contrast, forego sustainable economic and financial policies because in an emergency they can count on help from the international community.

**228.** The architecture of the international financial system essentially does not foresee the **regulatory element of bankruptcy proceedings**. This means there is inherent market failure that leads to prices for indebtedness being too low to have a preventive function. Investor expectations that countries in crisis will be saved means that they demand lower risk premiums as their losses will be limited. Thus the market prices do not have a disciplining function on debtors. Responsible action only arises if each action is credibly linked to liability for its consequences. An adequate bankruptcy process thus from the outset incentivizes due risk behaviour and sound economic and financial policies.

## 1. Debt crises and failure of the markets for government bonds

**229.** Sovereign debt crises and government insolvencies are **not a new phenomenon**. For example, the first payment default of which there is documentary evidence is presumably that in the 4th century BC when ten of the 13 city states in the Attic Maritime Association were unable to repay a loan from the Delos temple (Winkler, 1933). In the 14th century, Edward III, King of England, refused to repay his debts with one of the largest Florentine banking houses, resulting in their bankruptcy, and triggering the first collapse of a financial system in history. In the 16th century, Philipp II of Spain ruined banks in Southern Germany in exactly the same way (Kohn, 1999). Between 1501 and 1900 there were a total of 46 incidents of state bankruptcy in Europe. For example, among others, Brandenburg-Prussia did not repay its debts in 1683 and credit redemptions by Portugal, Austria and Greece as well as various German states were not forthcoming at least four times in the 19th century alone (Reinhart et al., 2003).

Only a few countries (including Switzerland and the United States) have since their foundation not defaulted on payment; however, in the case of the United States this only

applies at the federal level, as individual states of the Union, especially in the 19th century, definitely defaulted (Feenstra & Taylor, 2008). Germany defaulted in the 1930s (Reinhart & Rogoff, 2009; Borensztein & Panizza, 2008). Since the mid-1970s, payment defaults have been seen above all countries in South America and Africa. The most severe crises of recent years included the sovereign default by Russia in 1998 and Argentina in 2002 (Sturzenegger & Zettelmeyer, 2006).

**230.** On the one hand, objections to directly comparing the current debt situation with past sovereign debt crises are justified, as in the recent past it was typically developing countries and emerging markets that were hit by sovereign debt crises, whereas now it is **industrialized nations** that entail insolvency risk. On the other, the countries in question today have some things in common with the financing situation of typical emerging markets. One reason for the current debt problem is that the countries in question are members of a **monetary union** with an independent central bank responsible for the entire monetary area. This means in fact that all governments in the monetary union have to take up debt in foreign currency, as is typically the case with the developing countries and emerging markets. Given the deeper integration within the monetary union, this not only means far higher linkages between the real economies and financial sectors in the creditor and borrower countries, but also decisively constrains the range of possible solutions owing to the common currency.

**231.** Sovereign states cannot be forced to repay their liabilities. For there is no law that regulates national bankruptcy nor an international court of jurisdiction with whose help creditors can assert their claims against a sovereign state. And even if an international court existed it would no doubt be difficult to credibly offer assets that are mainly in the territory of the sovereign state to a creditor as collateral, let alone to confiscate them in the event of insolvency. In other words, repayment of sovereign debt is less a question of whether the debtor is able to pay and more of its **willingness to pay**. In line with a **cost/benefits analysis** the debtor will always choose to repay a loan if this seems more beneficial than facing a default and the associated costs (Eaton et al., 1986). Indeed, a crucial difference to corporate liabilities is that even after bankruptcy a state continues to exist while a company will have to quit the market at the end of the day.

**232.** While in the event of a loan repayment, the costs consist simply of the interest and the redemption payments, it is harder to calculate them in the case of a default, as they are made up of a series of direct and indirect costs. Exclusion from the international financial markets and the associated lack of opportunities for consumption smoothing as well as impeded investments are among the direct **costs of defaulting**. However, it is improbable that a debtor state will be excluded permanently from the capital markets (Kletzer, 1994; Bulow & Rogoff, 1989). Given the number of actors it will presumably be difficult to uphold exclusion in the long term especially as this would be to the disadvantage of potential creditors. After returning to the capital markets, there would be costs from the significant downgrading of the debtor country's credit rating and the related rise in risk premiums (Trebesch et al., 2010). Moreover, if trade sanctions have been put in place this may cause additional costs. The

greatest negative may, however, be the fact that the economic collapse usually associated with a government bankruptcy may be made even worse by multiple crises (Box 10).

Box 10

### The vicious circle of banking, debt and currency crises

Banking, debt and currency crises tend typically to not occur on their own, but often as **twin or triple crises**, as they are mutually reinforcing and can trigger one another. As a rule, they go hand in hand with an economic crisis, as each of the three types of crisis in itself impacts negatively on macroeconomic output; the economic crunch in turn makes the crises more severe (Feenstra & Taylor, 2008). From 1970 to 2000 there were a total of 45 crises of which four were classified as debt crises, 13 debt and currency crises, seven debt and banking crises and 21 triple crises (De Paoli et al., 2006). The different crisis combinations vary considerably in terms of duration and output costs (Table 15). The current situation corresponds to a twin crisis in which owing to the massive state support required a banking crisis led in the final instance to a sovereign debt crisis. There can be no talk of a triple crisis in the Eurozone, which would involve a currency crisis, too.

Table 15

**Output losses during debt, twin and triple crisis (1970 – 2000)**

| Type of crisis | Numbers of crises | Average median length of crisis | Mean cost per year[1)] |
|---|---|---|---|
| | | years | %[2)] |
| Debt crisis | 4 | 3 | – *1,0* |
| Debt and currency crisis | 13 | 5 | *10,3* |
| Debt and banking crisis | 7 | 8 | *13,2* |
| Triple crisis | 21 | 10 | *21,7* |
| All crises | 45 | 8 | *15,1* |

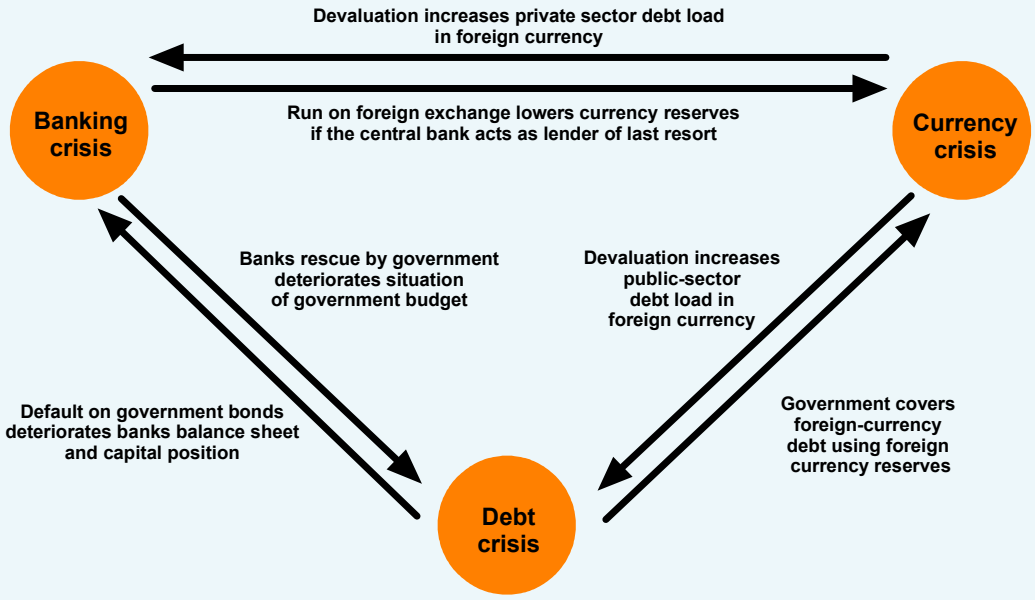
1) Cumulative difference per year between potential and actual output.– 2) As a percentage of estimated GDP.

Source: De Paoli et al. (2006)

Banking crises can cause **debt crises** if governments are forced directly or indirectly to bail out banks (Chart 37). Countries in principle have an incentive to prevent banks collapsing, as this can trigger a chain reaction and even a collapse of the entire banking system. The result would be severe negative effects on the real economy. For this reason, during the most recent financial crisis we saw extensive rescue action. A bail-out of banks by the public sector leads, however, to immense fiscal costs (JG 2009, item 172). The strain on public budgets can assume such a scale that the country's ability to shoulder its debts gets doubted and as a result the risk premiums for refinancing public debt rise; this in turn further worsens its ability to shoulder debt. In an extreme case, the government risks going bankrupt. At the same time, sovereign debt crises can impact (back) on the **banking system**. Since domestic banks are frequently a state's main creditors, they may take a severe hit if the government declares itself bankrupt or restructures its debt. This squeezes bank balance sheets and can even spell insolvency for them. State bankruptcy often hurts a banking system so badly because in the run-up to the crisis the government finds it harder (or at least more expensive) to finance itself in the international capital markets and therefore the sovereign debt is increasingly taken up by domestic banks. A debt crisis not only threatens the national banking system, but depending on the country's size, the international banking system, too.

Chart 37

**Vicious circle of banking, debt and curreny crises**






Debt and banking crises can trigger **currency crises** if a country has used up its currency reserves to such an extent that it may no longer be possible to defend a (fixed) exchange rate. This is particularly the case if a country draws on its foreign exchange reserves to service its public debt denominated in foreign currency. If a banking crisis is feared, by contrast, or if individual banks are considered at risk, then this may cause a run on the foreign exchange. In both cases, the foreign exchange reserves may be consumed such that the exchange rate can no longer be upheld. And the ensuring change in the exchange rate may intensify the banking and debt crisis by impairing balance sheets. A currency crisis such as an exit from the EMU can break a fixed exchange rate. The subsequent devaluation then sends the foreign-currency-denominated debt held by banks and the public sector soaring.

Each of the three types of crisis in itself impairs **output and employment**. For example, in the event of a banking crisis banks tend to clamp down on loan approvals or go bankrupt, which spells corresponding assets losses for institutional and private investors. Lower loan approvals and a negative influence on assets inhibit both the propensity to invest and consumer demand and thus hinder macroeconomic output. At the same time, the economic crunch exacerbates the crisis, as a recession makes it harder to service debts and to defend an exchange-rate regime. Multiple crises tend therefore to culminate in a **political crisis** as hardly any elected government can survive sagging economic output, dwindling incomes, and the asset losses associated with the debt, currency and banking crises.

**233.** The incomplete regulatory framework for sovereign debt has serious consequences for debtors and creditors alike. On the part of debtor countries, the high costs of a debt crisis (and they are all the higher if a debt crisis triggers a concomitant banking, currency, economic and political crisis) will lead to countries going bankrupt not at a sufficiently early point in time, but too late. In fact, **delays in declaring bankruptcy** tend in the case of countries not to be the exception but the rule. By contrast, such a delay is a punishable offence under commercial bankruptcy law, because there, too, company management would otherwise have an incentive to wait and see if things do not get better, possibly by opting for greater risks in a gamble for resurrection.

**234.** For this reason, a central component of bankruptcy law is to put a halt to on-going asset deterioration at as early a point as possible, which does however require **external intervention**. Because without the latter and a regulatory framework, governments have an incentive to delay declaring bankruptcy. A similar problem applies to applications for an IMF loan or one from the EFSF, as use of such loans can be interpreted as "a declaration of bankruptcy". Even if the costs of relinquishing state sovereignty are lower than those of multiple crises, most governments who seek help from the IMF then fall. One consequence of the lack of a law on state bankruptcy is that a timely solution seems "too expensive" for the debtor country and its government, and bankruptcy therefore gets systematically delayed.

**235.** For creditors, the lack of an insolvency regime means that there is practically no way of forecasting the loss risked (event or scale of a default). Unlike a corporate bankruptcy, the losses at risk with countries depend not only on economic factors but also on the institutional and political conditions there, which may change over time. And for creditors it is equally if not more important to gauge whether the international community will be willing to jump into the breach or will call on the private sector to participate. One key function of any bankruptcy regime is to create a hierarchy of creditors and thus define the distribution of assets in the event of losses. If private creditors can assess their share of the loss in advance, they will be in a better position to put a price on the risks. If, by contrast, the loss spread has to be renegotiated each time, then the result will depend on economic and political factors in the creditor and debtor countries, and these can hardly be forecast. Meaning the market is not able to set adequate risk premiums that would incentivize discipline in the debtor country at an early point in time. Instead, the **market has to fail** if there is no state regulation of loss allocation.

**236.** This by no means is specific to the European Monetary Union (EMU), because at the international level and among federations such as the United States there are also no bankruptcy regimes. This results in interest mark-ups on countries remaining very low over long periods and then suddenly surging without warning. For example, prior to 1998 emerging markets, for all the major differences in terms of economic conditions, only had to pay low interest premiums, which then soared after the crisis in Russia broke out (Dell'Aricca et al., 2006; Dungey et al., 2002). This market response can obviously be a rational response by investors. In general, we may then see a **self-fulfilling crisis** in the credit markets if markets following rational considerations expect the default of an illiquid but otherwise

solvent debtor (Diamond & Dybvig, 1983; Sachs, 1984; DeGrauwe, 2011). Essentially, long-term claims contrast with short-term liabilities in the case of both banks and nations.

Self-fulfilling crises describe a mechanism whereby, all other economic conditions being equal, a sudden changed set of investor expectations can create quite different results in the market place. As long as individual creditors expect that all the other creditors will continue to extend the loans made, they will renew their own credit lines or even grant larger ones. As soon as individual creditors believe, however, that others will not prolong their loans, they panic and begin to reduce their credit lines and the country can no longer uphold its short-term refinancing. Such self-fulfilling panic among investors can leave a country in a liquidity crisis and, if high refinancing costs persist, actually send it into a solvency crisis.

## 2. The international debate on an effective regulatory regime

**237.** In the early 2000s, precipitated by Argentina's disorderly default, a paradigm shift occurred in handling sovereign debt crises. The IMF sparked a lively debate on **reforming the international financial architecture** in order at least to try and reduce existing inefficiencies and distorted incentives for debtors and creditors (Sturzenegger & Zettelmeyer, 2006).

**238.** A first set of reform proposals sought on the one hand to reduce the wrong incentives for debtor countries that cause them to delay applying for an IMF programme for too long and, on the other, to improve the scope of **insurances for countries** against temporary and not self-inflicted shocks. The experience in many emerging markets showed that they had often been sucked into financial crisis by no fault of their own. Financial and currency crises are often highly contagious and can even spread to sound countries. The reasons: a sudden change in investors' risk assessment, for example, who focus on groups of countries rather than individual nations, or third-party effects, such as common creditor linkages via financial intermediaries (Van Rijckeghem & Weder di Mauro, 2001). This spawned proposals on expanding the IMF's range of instruments as regards insurance against unforeseen shocks and the risk of contagion. As with a normal insurance policy, the country would have to apply to the IMF and pay a premium on the policy. In return, it would be protected for the period of the insurance against balance-of-payments crises. Should the country actually come under pressure, it would automatically have access to the IMF credit line. Here, the insurance has the dual function of hedging a country against external shocks and signalling credibly to the markets that no liquidity problems can arise, meaning there is no cause to expect a creditor run.

**239.** These advantages contrast with the typical problems of any insurance, namely the **moral hazard** of the insured party. A country that is insured against balance-of-payments crises may be tempted to undertake too little effort to prevent them. For example, it may ease its budget discipline and thus take a greater risk of getting into a debt crisis. In the debate on possible reforms of the international financial system by means of insurance forms, the opponents of such mechanisms emphasize the danger of increasing moral hazard.

The compromise consisted in giving the IMF insurance instrument a high **prequalification** level. Insurances are to only be extended for crises that are not self-induced and therefore exclusively open to countries that meet a series of requirements as regards solidity. In fact the objective difference between self-induced crises and those for which a country bears no blame is anything but trivial. The prequalification instrument replaces the typical procedure of meeting conditions for access to an IMF adjustment programme after the crisis insured against has occurred (ex-post conditionality) with a system in which the countries have to prove themselves beforehand (ex-ante conditionality). The IMF has since floated two such programmes: the Flexible Credit Line (FCL), which is currently made available to Colombia, Mexico and Poland, and the Precautionary Credit Line (PCL) for Macedonia. These countries can thus draw on IMF credit lines in the event that they should unexpectedly find themselves in crisis.

**240.** A second group of proposals to reform the international financial architecture was the **mechanism for countries in default**, the Sovereign Debt Restructuring Mechanism (SDRM). The core assumption here is that the costs of sovereign debt crises can be attributed in large part to coordination errors between the parties involved. Thus, debt crises occur unnecessarily if creditors do not coordinate their actions and do not extend credit lines to an otherwise solvent state because each creditor presumes the others will also not opt for extension. Moreover, coordination errors can make restructuring debt harder during an actual insolvency. Because swift and comprehensive rescheduling of debt can get blocked by litigation before and during the restructuring negotiations. So-called "hold-outs" play a special role here – meaning the creditors who do not participate in negotiations and sue for full repayment after agreement has been reached at the negotiating table. To avoid such problems, the proposals in the framework of SDRM focus on mechanisms that screen creditors from litigation during the negotiations and render the result of an agreement between the debtor and a majority of the creditors legally binding for all creditors, including the hold-outs.

**241.** In the IMF's original suggestions (Krueger, 2001) it would have had the role of the presiding judge over the bankruptcy proceedings, with the advantage that the declaration of bankruptcy and the restructuring of debt (if not automatic) would take place faster and in a more orderly fashion. This would have marked a major step towards an international insolvency regime and stronger market discipline. A coalition of debtor countries that feared higher risk premiums, and the United States, then prevented such extensive reforms. Instead, all that was agreed were small steps solely intended to improve coordination between creditors in the event of an insolvency already having happened and to lessen the holdout problem by means of general debt agreements, so-called collective action clauses.

**Collective action clauses** are norms that are included in debt agreements and allow a (qualified) majority of creditors to agree to a change in the contractual payment conditions (or specifically to rescheduling of the debt) that is then binding for all creditors, including those who abstain or vote against the agreement. Thus, the reforms at the international level have in the final instance fallen a long way short of the goal of creating an effective regulatory

framework. In particular, there is still no bankruptcy regime and thus no basis for the markets to discipline countries in a prospective, risk-effective manner.

## 3. Effective long-term regulatory frame for the Eurozone

**242.** Even if reforms at the international level have remained incomplete, we can derive from them the core elements that should be considered when drawing up the reforms of the regulatory frame for the Eurozone. On the one hand, **insurance elements** are required to protect countries and the system from the effects of contagion and, on the other, **restructuring processes** are needed to allocate the risks of loss to the private sector. Fundamentally, a key guideline that should inform the reforms to create an effective regulatory regime would be that the framework must primarily serve to **prevent crises** and only secondarily regulate the handling of crises that have already occurred.

To this extent, the reforms presented here, which would culminate in a bankruptcy regime for EMU member states, cannot be directly realized owing to the current debt situation. If excessive debt has already been incurred or a crisis of confidence has arisen, then a bankruptcy regime can no longer function preventatively. Instead, ex-post changes to basic rules that lead to higher-than-expected losses in the private sector will serve to destabilize things further in such a situation. This does not make it less compelling to adopt a mechanism that delivers long-term stability, but it shows the direction in which the interim regime must go and where it should end. Metaphorically speaking, building a bridge only makes sense if it is clear which riverbank you want to reach.

**243.** The long-term, stabilizing regulatory frame must be transparent, foreseeable and credible. These requirements would favour **by and large mandatory rules** in order to overcome the problem of time inconsistency and enable markets to have a disciplining effect in advance by a prospective assessment of risk. As with any mandatory rules, one has to accept here that they will not be optimal for all settings. But they must be structured such that in most cases they do not depart too greatly from the optimal ex-post solution. Where a rule is so strict that its application in a crisis would be highly counterproductive ex post (as with the No Bail-Out rule), then ex-ante it does not unleash sufficient incentives for behavioural change. An example of a successful rule: the German debt rule, as it strengthens the principle of a balanced budget by envisaging flexibility of the businesses cycle and well-defined exceptions such as emergency situations.

**244.** In Europe, the **European Stability Mechanism** (ESM) is an attempt to create an institutional regulatory regime for national bankruptcy. However, in its present guise the ESM does not meet the standards for an effective long-term regulatory framework. It has some elements that lead to that goal such as providing an insurance solution for countries with **liquidity problems** in the form of a credit line facility. Moreover, credit approval is pegged to strict conditions. What is problematic, however, are the discretionary decision-making rules regulating the involvement of the private sector. A **solvency problem** has to first be ascertained by a debt sustainability study by the Troika (EU, IMF and ECB) of whether a country can viably shoulder its debt. The ESM member states then take a unanimous

resolution on the scale and the form of participation by the private sector, meaning that all member states participating in the vote must agree, whereby abstentions do not prevent the acceptance of a resolution. The decision to restructure thus remains **political**, and the private creditors can hardly foresee the outcome.

### A proposal for a long-term regulatory regime

**245.** A long-term regulatory regime for the Eurozone that fulfils the above standards could be structured such that using factual threshold variables, countries are subdivided into three groups.

- Countries with a debt-to-GDP ratio of less than 60 % and yet experience refinancing problems swiftly receive unlimited access to an ESM loan. This corresponds to the IMF insurance programmes, where countries have to prequalify by good behaviour for injections of liquidity.

- Countries with a debt-to-GDP ratio of between 60 % and 90 % may only receive a loan from the ESM if at the same time they opt for a multi-year adjustment programme. This process corresponds to the typical IMF programmes featuring ex-post conditionality.

- Countries with a debt-to-GDP ratio in excess of 90 % can only obtain an ESM loan if they at the same time agree to restructure debt with the private sector and the conditions imposed by an adjustment programme.

**246.** The advantage of this simple regime is its transparency and predictability. If all Eurozone countries have debt-to-GDP ratios below the 60 % threshold then it also has a clear preventative effect. For closing on the threshold means a gradual rise in risk premiums and thus direct incentives to maintain budget discipline, affording protection against liquidity problems that are not of a country's own making. Such an initial situation would arise simply after completing the interim regime of the debt redemption pact (item 212).

The zone of debt-to-GDP ratios of 60-90 % serves as a buffer to absorb the shock from shouldering risks from private debt or when warding off a banking crisis. In such cases, state debt levels can rise suddenly and rapidly, as in Spain and Ireland, and the expectation of immediate rescheduling can exacerbate a crisis. For this reason, the country can obtain an ESM loan subject to strict adjustment terms, but not involving mandatory private-sector participation. If official debt then rises through 90 % access to the ESM would only be possible with a simultaneous restructuring of private sector debt.

**247.** A series of **alternative solutions** meet the criteria of simplicity and transparency; however, they are not optimally calibrated as they essentially entail too rigid a pegging to mandatory rules. In the one variant, government bonds are automatically restructured and in each case triggered by access to the ESM, by an extension of the maturities (Weber et al., 2011). Here, all newly issued government bonds by EMU member states would feature standardized conditions on maturity periods. In other words, the bond contract would stipulate

that the maturity of each and every bond envisaged for the normal case would be extended by three years the moment the ESM agrees to an application from the country in question for financial assistance. The bond will continue to be serviced at the agreed conditions, but for the extended maturity. This proposal suggests an extension of the maturity by three years as during that timeframe the country in question should have largely undertaken the requisite efforts to reform and consolidate. A related proposal hinges on a kind of statutory convertible bond for states (Eichengreen, 2011). In this variant, all contracts would include an automatic debt cut as soon as a particular ceiling is overshot. The trigger can be a specific state debt-to-GDP ratio or alternatively a market indicator. The latter variant has all the same problems as do bank contingent convertibles (Box 11).

Moreover, access to the rescue plan could in general be designed such that liquidity assistance can only be provided for three years. Should the country then not be able to return to the capital market, it would automatically reschedule debt (Sinn & Carstensen, 2010). This variant is again duly simple, but focuses more on regulating how crises are handled then preventing them by timely behavioural adjustments. Another proposal can be considered one of those methods that seek to establish a long-term regulatory framework compatible with incentives (Delpla & von Weizsäcker, 2010). Here, debt-to-GDP ratios of up to 60 % would come with EMU liability (blue bonds), while if the debt ratio is greater, the individual country is liable for them (red bonds). The clear ranking of creditors in the event of bankruptcy is means to deliver the right price signals (via the risk premiums on red bonds). However, there is no credible mechanism here to ensure that if a debt-to-GDP ratio of 60 % is exceeded the country-specific liability actually kicks in and that EMU shared liability does not simply get extended. What all the proposals outlined here have in common is that they cannot be introduced at present. To be preventative, they all require that first the acute excess debt and confidence crisis is overcome.

### Necessary adjustments to financial market regulation

**248.** If the insolvency regulations are set in line with the above standards then this would without doubt mark a major step toward an economic and financial system that would be more stable in the long term. A necessary supplementary element to deliver credibility of any future bankruptcy regime is the permanent **separation of banking and debt crises**. By contrast, the current regulation of banks and insurances makes the linkage all the closer. As part of the standard procedure for valuing credit risk, article 109 of the proposed EU regulation on prudential requirements for banks and investment firms (European Commission, 2011a) states that all EU member state debentures denominated in euro be given a **risk weighting of 0 %** independent of the countries' ratings. According to article 110 of the regulation, this stipulation shall be applied not only to government debentures, but in principle to debt instruments floated by states and local authorities. In addition to the preferential treatment of government bonds in the EU's capital regulation, the liquidity requirements planned as part of Basel III involve other incentives for holding government bonds in a portfolio as liquid funds.

In the context of the liquidity coverage ratio (LCR) required under Basel III, a bank's liquidity requirement over the next 30 calendar days is calculated for a preset stress scenario. It must be covered by at least the same volume of asset items with the highest rating and by liquidity (classified as Level 1 and Level 2 assets). Level 2 assets can only account here for a specific portion and are factored into the equation at a discount. Government debentures (treated on a par with cash and cash reserves) are in principle Level 1 assets, meaning they have the highest rating and are thus preferred over corporate bonds, for example.

As part of the Net Stable Funding Ratio (NSFR) the refinancing requirement needed within one year must be covered by at least the same volume of readily available refinancing. To define the refinancing needed and available, the individual balance-sheet items are assigned specific weightings (on a scale of 0 % to 100 %), while asset items with a higher liquidity are assigned a lower weighting. Claims from governments, as with claims from central banks or the IMF, get a 5 % weighting, while bonds floated by companies with a rating of AA or higher are given a 20 % weighting.

These regulations closely interlink government risk and bank risk. In calm periods this can spell the advantage for governments of refinancing on favourable terms, as demand for government bonds is then promoted by the regulations. In times of crisis, by contrast, the impact can be horrendous.

**249.** In order to protect the banking system against the risks of a deterioration in a government's credit rating, government bonds must be given a positive risk weighting within the EU. The weightings should be set by the supervisory authority and only revised periodically. This is important if the negative spirals are to be avoided that can arise if market prices or ratings deteriorate quickly. However, the simplest solution would be to forego any staggered risk weighting and undertake a uniform weighting of all claims. This would be the basis for a leverage ratio based on the non-risk-weighted total assets. In other words, each asset item would get a risk weighting of 100 %. The German Council of Economic Experts advocates a leverage ratio as the central element of a robust regulatory framework (JG 2010, items 262 f.). To avoid cluster risks, it also suggests introducing a **large-exposure ceiling** for bonds of individual governments bonds that specifically also covers the domicile of a banking group.

**250.** A regulatory frame for the Eurozone is thus urgently required and also definitely needs additional regulation in the finance system if it is to be implemented credibly and effectively. The changes therefore needed, for example as regards capital regulations, are on their own insufficient to solve the on-going problem of SIFIs. That needs steps that go further.

## III. Regulating SIFIs

**251.** Ever since the controlled insolvency of Lehman Brothers and the subsequent collapse in world trade and large parts of the global economy, the international community, especially the G20 members, have committed to creating a new set of global rules and regulations, in order to limit the threat comprised by **systemically important financial institutions** (SIFIs) taking

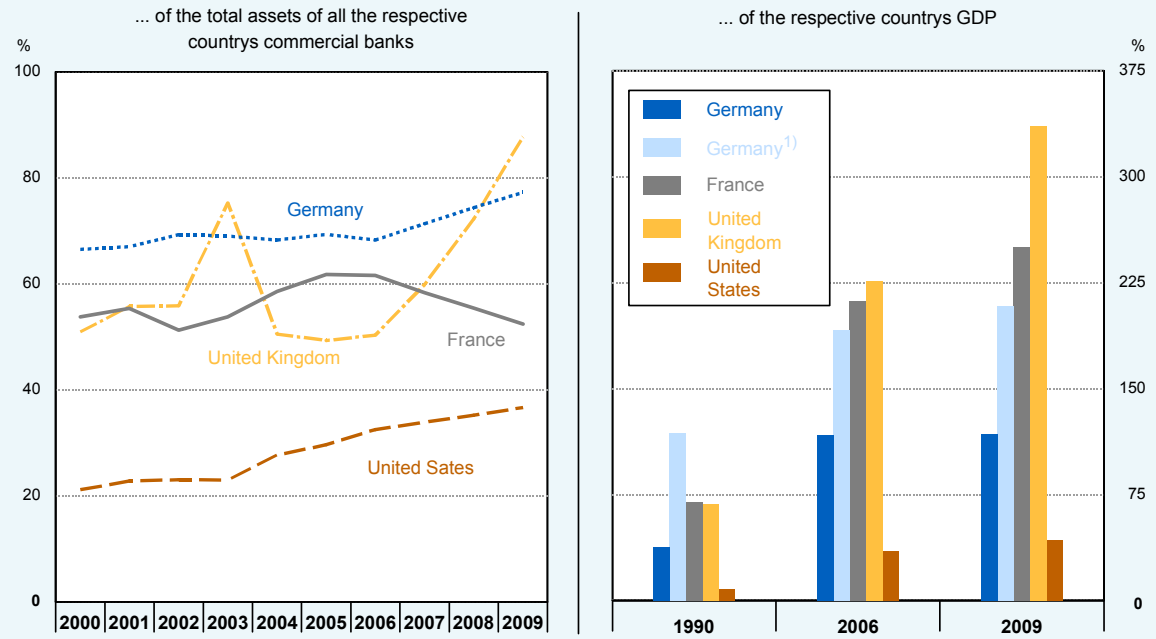
a hit. From the outset, these rules were to rest on **two pillars**. Firstly, a comprehensive international supervisory regime was to be created that would in normal times effectively watch over cross-border financial institutions and be embedded in this cross-border insolvency procedures in order to be able to ensure an orderly resolution and restructuring of SIFIs in emergencies. Secondly, such institutions were to have to maintain far higher buffers in the form of equity capital and liquidity in order to curb the probability of losses being able to lead to the insolvency of a financial institution. After three years of intense negotiations under the aegis of the Basel Committee on Banking Supervision (BCBS), concrete proposals are now on the table ready for realization and can be assessed.

**252.** The financial crisis itself has further exacerbated the so-called **too-big-to-fail problem** (Goldstein & Veron, 2011). The total assets of the 25 largest banks in the world increased by a factor of almost six between 1990 and 2007 and by 2009 by a factor of almost seven. The total assets of the world's ten largest banks as a ratio of the 1,000 largest banks rose from 14 % in 1999 to 19 % in 2007and by 2009 to 26 %. This global picture is likewise to be discerned in the trend for the banking systems of individual countries (Chart 38), whereby it bears noting that the merger of institutions (such as JPMorgan Chase and Bear Stearns in the United States) was part of government crisis management.

Chart 38

**The three largest banks respectively in selected countries**

The three largest banks total assets as a ratio ...




1) Total assets of the three largest banks factoring in the joint-liability structure of public and cooperative banks; Sources: annual reports of banks and the German Bundesbank; own calculations.

Sources: World Bank; Goldstein und Veron (2011)

**253.** In the past the German Council of Economic Experts already outlined guidelines to which the reforms of the financial market regulatory regime and the approach to SIFIs should be geared (JG 2009, item 196):

- Comprehensive financial supervision must be put in place to regulate SIFIs. In this context, the **realignment of the financial supervisory authorities** nationally and internationally calls for leaner supervisory structures as well as a bundling of supervisory powers. In particular at the European level, the complexity of supervisory structures needs to be reduced in order to establish a credible and stringent financial supervisory regime. On the basis of a comprehensive European Banking Supervisory Office, an **effective cross-border regime of intervention and restructuring** is called for to create the right incentives ex ante to secure creditor liability and effectively contain the systemic importance of financial institutions. To this end, a regime needs to be devised that in the event of the threat of crisis enables the supervisory authority to opt for early and wide-ranging intervention and if the supervisory stipulations are not met can then cause the restructuring and resolution even of cross-border activities.

  The reform of the European financial supervisory regime has fallen far short of these goals. There has actually been an increase in the complexity of the supervisory structures and too few powers have been transferred to the European institutions. As regards the regime of intervention and restructuring, the reforms initiated to date at the international level have also not squared up to the brief. Although restructuring regimes have been made at the national level (in particular in Germany), they largely go nowhere as they cannot be effectively applied to institutions with cross-border activities (JG 2010, items 322 ff.). The reform proposals at the international and European levels are solely intended to better coordinate national measures and fall far short of creating an effective and credible insolvency regime. Moreover, in this regard no major progress is to be expected in the near future (items 234 ff.).

- In the absence of functioning insolvency procedures, it becomes all the more important to significantly boost the **resilience of systemically important institutions** and to reduce the implicit state guarantee for SIFIs by means of suitable ex-ante incentive mechanisms. Far higher capital requirements which are geared to the degree of systemic importance or corresponding charges should effectively counteract the incentive to become systemic.

  In this context, the additional capital requirements such as are proposed by the BCBS for globally active SIFIs do not go far enough. While they do envisage a so-called progressive component, whereby the additional capital requirements are aligned to the degree to which a financial institution is systemically important, the incentive is minor. SIFIs' capital buffer will in future hardly suffice to enable them to digest significant losses in the event of a crisis without governments wading in to support them (item 267 ff.).

Whether the reforms now resolved will suffice to prevent a future socialization of the costs of a crisis in SIFIs is thus doubtful. The reforms decided so far will at any rate hardly be enough to prevent governments and central banks from falling hostage to SIFIs.

## 1. No effective supervisory and insolvency regime for SIFIs

**254.** The risk innate in the collapse of globally active SIFIs is far greater than in the case of national SIFIs as the shock gets transposed onto other countries' economies far more directly and extensively. This is why comprehensive supervisory regulation and adequate insolvency proceedings and resolution mechanisms for SIFIs in general form a central pillar of financial system stability. This is especially true for corresponding mechanisms for globally active SIFIs. The basic problem in the approach to SIFIs with cross-border activities (as regards supervision both in calm times and crisis management) is that the supervisory and resolution authorities each only act nationally and these actions are hardly subject to international coordination. The extent of this problem becomes especially clear in the context of the **trilemma of international financial supervision** (JG 2010, item 324). The latter refers to a triangle of three goals, of which respectively only two can be achieved at one and the same time: stability of the international financial system, global financial institutions and sovereignty of national supervision. In the current situation globally active financial institutions are supervised by national supervisory authorities, to the detriment of international financial system stability. The latest financial crisis shows the dangers of this inauspicious constellation.

**255.** This triangle of goals essentially demonstrates that if in terms of economic policy a stable international financial system with globally active financial institutions is a desideratum then countries cannot continue to insist on the sovereignty of national supervisory authorities. At the European level this means creating a **comprehensive European financial supervisory body** with all the powers over globally active financial institutions. By contrast, at present a path is being trodden at the international and European levels that attempts to harmonize all three dimensions of this triangle of goals and eliminate the trilemma by means of improved **cooperation between the national authorities**. Such a strategy will not completely succeed in solving the trilemma.

### Reform of European financial supervision

**256.** The reform at the European level has hitherto only moved in very small steps and does not meet the standards for a comprehensive European supervisory structure. Following the proposals of the group of experts chaired by Jacques de Larosière (De Larosière et al., 2009) a series of new supervisory bodies were created that were then instilled with few powers (JG 2010, items 284 ff.). For supervision at the level of individual institutions (micro-prudential supervision) three institutions were established, responsible for securities, banks, insurances and company pension provisions as well as 36 supervisory colleges for financial institutions with cross-border activities. This reform only served to point up the prior fragmentation of the European supervisory structure.

**257.** In December 2010, the **European Systemic Risk Board** (ESRB) was established as the macro-prudential supervisory instrument (European Parliament, 2010), whose task is to monitor and assess macroeconomic systemic risks to financial stability and, if necessary, issue risk warnings and recommendations for action to curb these risks. The warnings and

recommendations can be geared to the European Union as a whole, to individual member states or corresponding supervisory authorities including a timeframe for the relevant measures. In practise, the ESRB will have to process complex information. It is embedded in the European System of Financial Supervision (ESFS), which networks the financial supervisory actors at the national and European levels (JG 2010, items 284 ff.).

**258.** The implementation of the ESRB's decisions reveals the most striking weaknesses of this body, namely that it only has **weak instruments** to prevail against systemic risks. In the event of identified systemic risks, recommendations are forwarded to the corresponding addressees. The ESRB has no executive instruments whatsoever to compel the latter to take up these recommendations, as the ESRB approach is based on the act-or-explain principle. The addressees of the recommendations are meant to respond by initiating steps and to adequately explain their possible non-action. Moreover, there is little prospect of additional pressure by a public regulative, as warnings and recommendation are in principle not published and non-actions by an addressee or an inadequate explanation are subject to strict confidentiality. To date, the ESRB has issued a public recommendation intended to limit the risks of indebtedness in foreign currencies. Given the acute pressure to which the core of the Eurozone financial system is subject at present, this problem seems somewhat secondary.

**259.** The newly created **European Banking Authority** (EBA) likewise initially failed to make use of the stress tests in July to achieve credibility and convince the markets that it duly identified and outlined the risks in the European banking industry. Only a few weeks after the release of the positive test results, the markets and rating agencies subjected the sector to a real stress test and downgraded the ratings for a large number of European banks. One reason why the EBA's stress tests in the final instance had such mild findings was presumably the on-going strong position of the national supervisory agencies, which put much elbow grease into presenting as favourable a picture as possible of their respective institutions. By contrast, the German Council of Economic Experts has in the past on several occasions advocated incisive banking supervision at the European level (JG 2010, item 286; JG 2009, item 242; JG 2008, items 282 f.). Comprehensive European banking supervision modelled after the US Federal Deposit Insurance Corporation (FDIC) should have far-reaching intervention rights and not just have corrective instruments but also be in charge of restructuring SIFIs that have got into difficulties. As regards the European restructuring mechanism, the basis would be laid for an effective insolvency regime for SIFIs (items 269 ff.). The reforms to supervisory bodies lag far behind such requirements.

### To date no effective supranational insolvency regime to be seen

**260.** On the basis of experiences gained in the recent financial crisis, the **Basel Committee on Banking Supervision** has drawn up recommendations for dealing with financial institutions that have cross-border activities (BCBS, 2010a). Fundamentally, as part of a universal approach it would be necessary for a financial institution with its cross-border linkages to be considered as an entity that in the event of collapse would be caught by a single (supranational) supervisory authority and then restructured. In the most recent crisis, many countries were only able to rely on a national body, which is why they opted for a kind of

ring-fencing strategy whereby domestic creditors received preferential treatment and the institution's foreign units were left to the foreign authorities to deal with. The BCBS assumes that many countries will in future most probably choose a ring-fencing strategy in the event of a crisis. For this reason, the BCBS's recommendations focus on **improving the national resolution regime** and on **intensifying international cooperation** between the national supervisory bodies.

**261.** At the G20 summit in Toronto in June 2010 the heads of governments signed up to implement these recommendations. In some countries, national resolution mechanisms have since been created or improved. The reforms have gone at different speeds in the various jurisdictions, however, and the resolution instruments chosen are very heterogeneous. Above all, they cannot cover financial institutions that are active across borders. For this reason, the BCBS has emphatically called for intensified cross-border cooperation and coordination between the relevant national supervisory authorities in the domiciles and the countries targeted by financial institutions with cross-border activities (BCBS, 2011a):

- National supervisory authorities should be obliged by law to **cooperate and exchange information** with authorities from other countries. Domiciles and targeted countries between which there are intense cross-border linkages of the financial institutions should reach agreements that ensure the timely collection and exchange of information.

- **Mutual recognition** of crisis management and resolution measures should be improved.

- An **institution-specific cooperation agreement** should be concluded between the authorities in the domicile and targeted countries for each globally active SIFI, regulating the powers in planning and managing the resolution of the corresponding SIFI.

- The design and reach of national resolution regimes should be **harmonized** at the international level.

**262.** The **Supervisory Colleges** comprise another coordination instrument as part of the international supervisory structures, which pursuant to article 131a of the revised capital requirements directives (2006/48/EC; 2006/49/EC; 2009/111/EC) have to be established for all transnationally active banking groups within the **European Economic Area**. In general, the supervisory colleges are permanent, multilateral working groups among the relevant agencies that are responsible for supervising cross-border banking groups destined to enhance cooperation and coordination of the national supervisory authorities among themselves. The colleges' core task is to gather and exchange relevant information, in particular on the risk profile and financial situation of the banking group thus supervised in an effort to help the on-going supervision of international banks and solving emergencies. However, the supervisory colleges probably make only a marginal contribution to effective international supervision of trans-nationally active banking groups as they only have a brief to coordinate and have no decision-making rights let alone the authority to act (JG 2010, item 284).

**263.** Unlike these approaches, which in terms of game theory call for cooperation in a non-cooperative game, the IMF proposes a comprehensive set of European rules (Fonteyne et al., 2010). The German Council of Economic Experts feels such a system must at any rate be applied mandatorily to all Eurozone member states and should also be open to the other European Union members. A **European Resolution Authority** (ERA) should be set up for the SIFIs that solves the conflicts of interest between the national supervisory authorities and overcomes the problem of coordination. Moreover, the ERA should be able to take the swift decision compellingly necessary in the event of a crisis. To this end, the ERA must have the requisite powers, a clear mandate and a robust set of rules that are then obligatory and binding between the EU member states. In particular, the ERA must be able to take the initiative if there are signs of a financial institution having solvency problems and take the relevant steps.

### The requisite European restructuring regime for SIFIs

**264.** Moreover, the ERA requires access to comprehensive financing facilities as liquidating an insolvent bank always involves a substantial and swiftly available financing requirement. The German Council of Economic Experts believes the recommendations the IMF has to formulate here need to be advances such that the restructuring costs are split up by a staggered mechanism:

- As a first step, financing of crisis management and resolution of a financial institute is provided by a **European restructuring fund** that could be modelled on the German restructuring fund. Globally active SIFIs would pay into the European fund instead of the national restructuring fund. Thus, first and foremost the financial industry would itself participate in the resolution costs of a financial institution. Should the financial resources of the European restructuring fund not be sufficient (or the maximum financing to liquidate an institution be limited by agreements), then

- In a second step, the financing would be continued in the framework of a **general burden-sharing model**. The difference between this and the first step is that now a general public-sector fund comes into play.

- The third step would then be pro-rated netting as part of a **specific burden-sharing model**. For example, the ESM's distribution key could be applied here. Even better would be if the key were to be based on a bank's cross-border liabilities, as these give an indication of the benefits that a specific bank brings to a country (Goodhart & Schoenmaker, 2006).

**265.** The advantage of the multi-tier model is that it can reduce the conflict of interests between national decision-makers, as in the first step only private-sector financial resources are involved. Only if the financial requirement exceeds the first-time potential are public finances required and costs socialized. In fact it can take some time until sufficient resources have been committed to the European restructuring fund. This depends decisively, however, on how high the annual contribution by the private sector is. The regime proposed here assumes a uniform EU-wide regulatory regime per se such that individual countries do not benefit from lax regulations and in the event of a crisis the costs are unduly placed on the

shoulders of the other countries. Another advantage would be that the ERA (like the US Federal Deposit Insurance Corporation [FDIC]) would combine both supervisory and intervention functions. Since default of a financial institution would directly affect the ERA, the latter would have the right incentive to act at an early point in time and take wide-ranging steps to avoid escalation (JG 2009, item 219).

**266.** The German Council of Economic Experts has on several occasions highlighted the **advantages of European financial supervision** and a European restructuring regime (most recently in JG 2010, items 326 ff.). Over the last three years neither the EU member states nor the Eurozone countries have succeeded in finding a viable solution here. Instead the trend has been to adopt national solutions that cannot fulfil the goal of providing an effective and credible insolvency regime for banks with cross-border activities. For this reason, one of the key pillars on which the new regulations on supervising SIFIs should rest has turned out far too small. The weight therefore is having to be borne by the other pillar, namely strengthening of resilience by raising the capital requirements.

## 2. Inadequate resilience

**267.** It became clear during the financial crisis that many banks had too little resilience. Furthermore, the regulatory capitalization requirements as met only inadequately covered the actual ability to shoulder losses. For example, Switzerland's UBS consistently had a capital ratio pursuant to the Basel II criteria of over 10 % prior to receiving support, while the reported equity had gradually fallen to only 2 % of the risk-unweighted total assets (JG 2008, Box 9).

**268.** The BCBS has tabled comprehensive rules for banks in the form of the Basel III accord, reforming the prior framework of the Basel II accord and to be applied in full by 2019. The new regulations hinge on giving the capitalization requirements a leaner qualitative and quantitative look (JG 2010, items 253 ff.; BCBS, 2011b) in order to thus enhance the banks' resilience to shocks. The qualitative criteria for regulatory equity capital were intensified and the minimum capital requirements quantitatively raised. Thus, following a transition phase as the basic requirement, an equity to risk-weighted asset ratio of 8.0 % is set, consisting of at least 4.5 % Common equity Tier 1 capital, an additional 1.5 % additional Tier 1 capital and further 2.0 % Tier 2 capital (Chart 39). Moreover, the Basel III rules envisage a counter-cyclical capital buffer of a maximum 2.5 %, geared to the trend for macroeconomic variables, as well as a capital conservation buffer of 2.5 %.

### Additional capital requirements for SIFIs

**269.** These fundamental capital requirements, applicable then to all banks, are now being extended by additional capital requirements for SIFIs. The Financial Stability Board (FSB) presented recommendations to the G20 group in October 2010 on handling SIFIs (FSB, 2010). According to the BCBS consultation paper, in particularly **globally active SIFIs (G-SIBs)** shall be better able to absorb losses than the level set in the minimum requirements of the Basel III accord (BCBS, 2011c). The additional capital requirements for G-SIBs are

designed as progressive components such that they rise with the systemic importance of the bank in question. At the same time, these financial institutions are to be subject to more intensive and coordinated supervision, together with a uniform resolution regime. Measures that are initially applied to globally active SIFIs will at a later date be extended to nationally active SIFIs.

Before SIFIs can be regulated they must first be identified as such by the supervisory authorities. Financial institutes are in general considered systemically important if they have a corresponding size and are strongly networked within the financial system, and their market exit would cause great turbulence. There are fundamentally different methods and indicators available to measure systemic importance (JG 2009, item 207; DB-Research, 2011): on the one hand, statistical methods such as the conditional value at risk (CoVaR) or network models are applied. From the regulatory viewpoint, the downside to them is their complexity and lack of transparency.

For this reason, the supervisory authorities currently prefer **indicator approaches**. A score is calculated from a series of indicators that is felt to reflect the bank's systemic importance. Such indicator approaches can be used universally as the relevant data are available and are highly transparent. This is especially crucial if the models' results are then used to reduce the systemic relevance of the banks, say by setting levies or higher capital requirements. A bank can then derive from the results the necessary steps to reduce its systemic importance. What is problematic is the largely arbitrary choice of indicators and their weighting.

**270.** The BCBS has developed an indicator method for judging the systemic importance of G-SIBs that is based on **qualitative and quantitative indicators**. It reflects banks' size, interconnectedness, substitutability, cross-border activities and complexity (Table 16). We have already discussed at length how to measure the systemic importance of a financial institute, degree of interconnectedness and complexity in the past (JG 2009, item 206). The variable of substitutability expresses the bank's role in the market infrastructure. The exit of a financial institute disturbs the smooth functioning of financial services, such as payment systems or liquidity flows. Such interruptions are all the more severe the more important a bank is in a specific business field, meaning it is more difficult to substitute. Measuring cross-border activities reflects a G-SIB's global spread. The impact for the international financial system is therefore greater in the event of a globally active financial institution collapsing compared to banks with a national focus. Moreover, it is harder for the supervisory authorities to coordinate resolution of banks with international operations.

**271.** Each of these five categories is assigned a factor of 20 % when calculating a bank's score, the **degree of its systemic importance**. Each category is defined by several indicators that are inputted into the category, each with the same weighting. The value of an indicator for an individual bank is then measured in relation to the aggregated value of all banks considered. A qualitative assessment by the supervisory bodies rounds out these quantitative indicators. The G-SIBs are subdivided into five categories in line with their scores, and these

are linked to additional requirements as regards their ability to absorb losses. In this way, the additional capital requirements rise with the level of systemic importance.

Table 16

**Systemic importance of financial institutions: An indicator-based measurement approach**

| Category (and weighting) | Individual indicator | Indicator weighting (%) |
|---|---|---|
| Cross-border activity (20 %) | Cross-border claims | 10 |
| | Cross-border liabilities | 10 |
| Size (20 %) | Total exposures (including off-balance sheet activities) | 20 |
| Interconnectedness (20 %) | Intra-financial system assets | 6,67 |
| | Intra-financial system liabilities | 6,67 |
| | Wholesale funding ratio | 6,67 |
| Substitutability (20 %) | Assets under custody | 6,67 |
| | Payments cleared and settled through payment systems | 6,67 |
| | Values of underwritten transactions in debt and equity markets | 6,67 |
| Complexity (20 %) | Over-the-counter derivates notional value | 6,67 |
| | Level 3 assets[1)] | 6,67 |
| | Held for trading and available for sale value | 6,67 |

1) Illiquid assets, whose fair value can only be estimated.

Source: BCBS (2011c)

**272.** On the basis of their size and supervisory criteria, 73 banks from among the world's largest banks were then selected by the BCBS and included in a sample of possible G-SIBs. For these banks, data were collected for the relevant indicators and calculated in line with the above-mentioned methodology for the respective degree of systemic importance. This procedure then identifies **28 banks as G-SIBs** (of which one bank comes under discretionary supervisory decision) and subdivides them into five categories of systemic importance. The additional capital requirements for G-SIBs are then between 1.0 % and 2.5 % of the risk-weighted assets, to be met with Common Equity Tier 1 capital. Should in the opinion of central banks and the supervisory authorities a major bank then continue to grow strongly, the current maximum additional capital requirement can be raised from 2.5 % to 3.5 %. Should this still not suffice, there is further scope upwards.

**273.** Essentially, the **BCBS regulations are meant to be evolutionary** in the sense that they reflect future banking industry trends and can take up advances made in measuring systemic importance. In particular, the banks' scores are recalculated each year such that they can be adjusted to changes in systemic importance on a constant basis. The group of banks that come into question as possible G-SIBs is reassessed every 3-5 years. Moreover, the fundamental methodology applied, including the indicator method, is evaluated at similar intervals.

**274.** The additional capital requirements for the corresponding G-SIBs shall be added to the capital conservation buffer as already envisaged in the Basel III accord as it stands (BCBS, 2011b). They shall then be introduced at the same time as the capital conservation buffer and the countercyclical capital buffer. The introductory phase will run from 1 January 2016 to the end of 2018 so that the reforms proposed in the Basel III accord, including the additional requirements on the ability of G-SIBs to absorb losses, apply in full as of 1 January 2019. Given a fully utilized countercyclical capital buffer, the maximum capital requirements for the G-SIBs (that will later also apply to national SIFIs) assume Tier 1 and Tier 2 **capital coverage of 15.5 %** of risk-weighted assets (Chart 39). The capital requirements the BCBS proposes are expressly **minimum levels**, although each jurisdiction can itself elect to impose higher capitalization requirements.

**275.** The **EU Commission** has tabled a package of laws to enable implementation of the Basel III guidelines that will combine a directive and a regulation and replace former capital requirements directives (2006/48/EC and 2006/49/EC). The proposed guideline (European Commission, 2011b) will contain regulations on the admission of financial institutions to deposits business and covers the various fields of application of the current capital requirements directives. Moreover, it contains some innovations such as improvements in the field of governance and regulates the capital buffer as envisaged in the Basel III accord (capital conservation buffer, countercyclical capital buffer). The regulation (European Commission, 2011a) will cover the activities of financial institutions and investment companies and in particular involve equity capital for financial institutions (excepting the capital buffers), liquidity and debt levels.

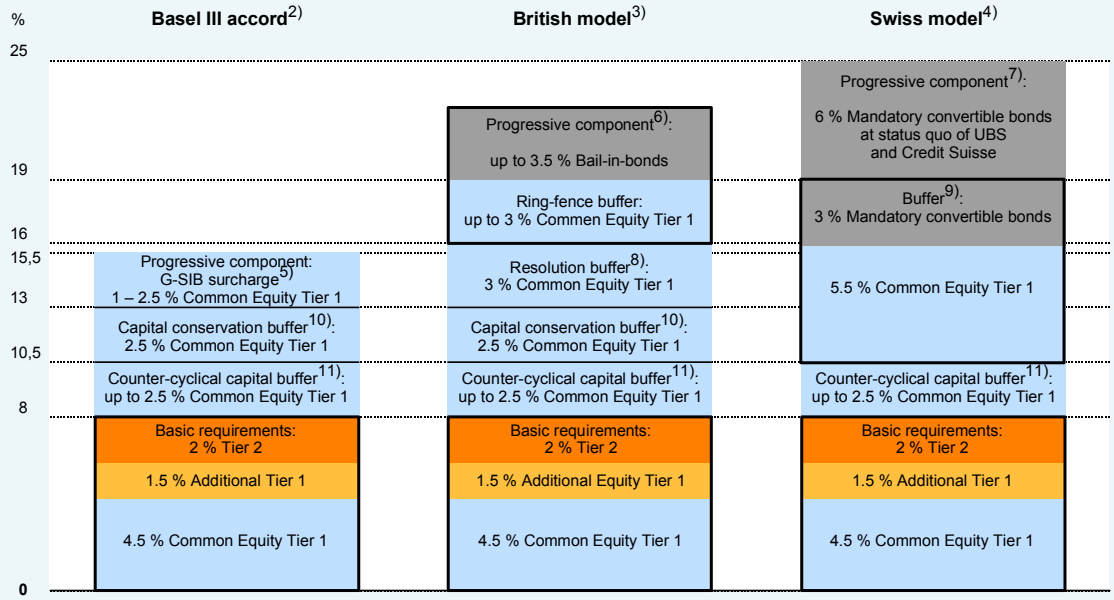
**276.** In this way, the EU Commission is striving for **uniform regulations** that will create the same conditions for all EU member states. Precisely the regulation, which can be applied directly as EU-wide law and does not have to be translated into national law first (as does a directive), is meant to make certain that the same basic requirements hold in all member states. Unlike the BCBS's approach (it always considers the capital requirement as the minimum capital level) the EU Commission is of the opinion that it is also a **maximum**. In other words, it blocks individual member states from introducing stricter rules (such as Spain, Sweden and the United Kingdom are planning) and making higher capital requirements. The countries would then only be flexible in adjusting the countercyclical capital buffer and additional capital requirements for individual banks or for property loans. The EU Commission's approach is not very helpful here. Instead of forbidding countries from exceeding the capital ratios set in the Basel III accord, the Commission should actively support the latter and encourage the other countries to follow them. Given that banking industry stability depends decisively on the scale of the in-built buffer, higher capital requirements are clearly to be welcomed (IMF, 2011b; ICB, 2011).

**277.** This is the path taken, for example, by the **United Kingdom** and **Switzerland**, each having set up a commission of experts to draft a proposal on how to handle SIFIs (ICB, 2011; Schweizer Expertenkommission, 2010). Stricter banking regulation and high capital ratios are

meaningful specifically for those countries whose banking sector accounts for a disproportionate part of their overall economies. A country is hardly able to put up the necessary financing such as is necessary to liquidate SIFIs without endangering the entire economy. The British and Swiss model takes core elements of the Basel III concept and adds further instruments so that overall the **capital requirements for SIFIs are significantly higher** than envisaged in the Basel III accord (Chart 39). Thus, British and Swiss SIFIs face a capital requirement of up to 22.5 % or 25 % of risk-weighted assets respectively.

Chart 39

**Capital requirements according to the Basel III accord, the British and the Swiss model[1)]**




1) Capital as a ratio to risk-weighted assets.– 2) Based on the BCBS consultation paper on global systemically important banks (G-SIBs), July 2011.– 3) Based on the final report of the Independent Commission on Banking (ICB), September 2011.– 4) Based on the final report of the Swiss commission of experts on limiting macroeconomic risks caused by large corporations, September, 30th 2010.– 5) For global systemically important banks (G-SIBs) additional equity capital requirements apply depending on the degree of systematic importance.– 6) Is geared to the size of the financial institutions and is deposited by Core Tier 1 capital (ring-fence buffer) and bail-in bonds. Bail-in bonds are in principle all external capital (in particular long-term unsecured liabilities, including CoCos) that can be drawn on to absorb losses and must meet the Basel III criteria für supplementary capital.– 7) Is defined by the size of the financial institutions and is supported by CoCos. In the UBS and Credit Suisse status quo, the capital requirement ist 6.0 %. CoCos count as external capital that is transformed into equity and can be used to absorb losses and must be at least meet the Basel III criteria for supplementary capital.– 8) Is calculated if a bank has made no credible precautions, i.e. corresponding plans to restore financial soundness or to facilitate liquidation in the case of crisis.– 9) Serves to boost financial institutions' additional capacity to absorb losses and shall be refilled by Common Equity Tier 1 capital and CoCos. – 10) Constitudes an additional capital instrument for loss absorption in relation to Basel II; shall be refilled by automatic reinvestment if the bank falls below the threshold.– 11) Is set by the national supervisory authority on the basis of macroeconomic variables.



However, in both cases the attempt to unilaterally intensify the capital ratios is clearly related to concerns as to the competitiveness of the respective domestic financial centre. Seen thus, in both reform approaches contingent capital plays a prominent role (Box 11). Moreover, both the Swiss and the British model involve tools designed to offset at least in part the absence of an international insolvency regime. Britain's Vickers Commission has proposed a far-reaching proposal with a view to a dual banking system.

Box 11

**Contingent capital as a supervisory tool**

The capital ratios innate in the British and Swiss models are to be covered in part by bail-in bonds and contingent convertibles (CoCos). Both financial instruments constitute a specific type of **contingent capital** that can be considered hybrid capital given its qualities as debt and equity. If a predefined event occurs, such as a specific capital ratio not being met, the debt is automatically converted into equity. The **bail-in bonds** envisaged in the British model differ from the **contingent convertibles** in the Swiss model as regards delimitation and purpose. In particular, long-term, unsecured liabilities come into question as bail-in bonds that have a remaining term of at least 12 months. Contingent convertibles can essentially meet this definition. However bail-in bonds trigger the conversion of debt into equity at a late point in time whereby the converted capital is solely used to liquidate a financial institution (gone-concern principle) whereas CoCos typically get converted earlier on and serve to keep the financial institution afloat (going-concern principle).

By virtue of this mechanism, liabilities previously carried as debt are transformed into equity that can cover a loss and thus contribute to improving a financial institute's solvency. From the perspective of supervision, this instrument can as it were indirectly increase a financial institution's level of capital available to absorb a loss and serves in accounting terms as a capital parachute that brakes the erosion of capital in the event of negative shocks and can thus potentially slow the downwards spiral of balance-sheet reductions (Admati et al., 2011). In this way, financial institutions' resilience can be emphatically strengthened and the probability that losses have to be borne by the public sector lowered. On the other hand, contingent capital is carried in normal periods as debt that makes refinancing for financial institutions more cost effective in fiscal terms than with equity, even if the risk of conversion and thus loss is considered in the form of higher risk premiums. This hybrid property of contingent capital enables the regulators to increase banks' resilience while at the same time not impairing their **competitiveness** if the financial market regulation is not global but only implemented at the national level.

Yet the use of contingent capital as capital for supervisory purposes entails a series of uncertainties and problems. In particular the actual structure of these financial instruments is complex and can create the **wrong incentives**. Company internal and external variables are available as trigger mechanisms, and they can be based on market or balance-sheet data respectively. Another option is a discretionary trigger set by the supervisory authorities or a combination of different trigger mechanisms. Moreover, the conditions need to be set at which the debentures can be converted into equity, in particular the conversion price and the number of share certificates.

The very diversity of possible structures for CoCo capital itself indicates the principle uncertainties and problems of this financial instrument. Of particular concern are possible opportunities for a deliberate **manipulation** of market prices and balance-sheet data by market players (Admati et al., 2011; Maes & Schoutens, 2010; McDonald, 2010). Triggering the conversion of the contingent debentures into equity entails the intrinsic risk of contagion and can cause a **domino effect**, for example if convertible bonds are held by other financial institutions (Maes & Schoutens, 2010; Sundaresan & Wang, 2010; Goodhart, 2010). All in all, contingent capital should be treated with caution as an instrument for supervisory regulation, which is why it is to be welcomed that the central banks and supervisory authorities involved in drawing up the Basel III accord in the final instance decided against contingent capital.

### Ring-fencing as regulatory instrument

**278.** Another regulatory instrument is that tabled by the British expert commission for a so-called **ring-fence method**. The idea is to create clear fault lines between retail banking on the one hand and corporate and investment banking on the other. This can occur within one banking group by assigning the different financial services to distinct legal entities. This organizational subdivision of banking business is intended to isolate those fields of banking whose survival is critical for the economy as a whole and for private banking clients in particular. The expert commission therefore defined financial services that can only be provided by separate banks, forbidden financial services that may not take place in ring-fenced banks, as well as financial services that may also additionally be offered in ring-fenced banks (Table 17). Calculations on the basis of bank balance sheets in 2010 reveal that this involves just short of two thirds of the volume of all bank transactions that may by no means be provided by ring-fenced banks (ICB, 2011). Moreover, the commission determined to what extent the ring-fenced banks can be linked legally, operationally and economically to other units of the banking group. This regulation applies essentially to independent banks that are not part of a banking corporation.

Table 17

**Schematic outline of the Vickers Report ring-fence approach**

| Mandated | Permitted | Prohibited |
|---|---|---|
| | financial services | |
| Taking deposits from and providing overdrafts to individuals and small and medium-sized enterprises in the United Kingdom | Taking deposits from and providing payment services to any costumer within th European Economic Area (EAA)[1)]<br><br>Lending, trade and project financing as well as (project-) consultancy for individuals and non-financial companies inside the EAA | Any financial services for clients outside the EAA<br><br>Originating, trading, lending or making markets in securities (including debt securities, equity securities, derivatives and asset-backed obligations)<br><br>Loans to financial companies |

1) Consisting of the 27 EU member states, Iceland, Liechtenstein und Norway.

Source: ICB (2011)

**279.** In other words, the ICB's ring-fence notion constitutes a kind of **dual banking system**. The so-called Volcker rules developed during the US financial market reform process and reflected in the Dodd Frank Act use a similar idea and envisage limitations on a bank's activities. A dual banking system consciously accepts the price that synergies between different financial services are lost and by contrast puts more priority on improved stability.

**280.** **What is doubtful** is whether such a separation and ring-fencing of deposits can actually **enhance system stability**. This would only be the case if the government exclusively supports banks in order to protect savings deposits and SMEs and simply lets all other business fields hit the wall. The experiences gained in the 2008 banking crisis show, however, that government supported a large number of different banks that had no retail arms. Indeed, in Germany such banks were in the majority: neither the Landesbanks, Hypo Real Estate nor

Aareal Bank were saved out of concern for retail clients' deposits. Government rescue of these banks was justified instead by the danger that the bankruptcy would directly spread to other financial institutions. The organizational separation and ring-fencing of retail business would not change this domino effect one iota, as the sections not fenced off would still harbour significant systemic risks. And without an effective cross-border restructuring process, there would still be no orderly manner of liquidating investment banks.

**281.** However, the national agencies are tempted to externalize this negative systemic risk abroad by limiting possible support to their own country. This is the deeper underlying problem of the British proposal: Alongside ring-fencing it also opts for a **geographical subdivision** of financial institutions. At any rate, the Vickers model only ring-fences retail clients domiciled in the United Kingdom. However, because limiting things to the domestic market would not have been compatible with the laws on the European single market, the institutions were offered the option to extend the ring fence to include the European Economic Area. Transactions in all other countries have to remain outside the fence (Table 17). With this regulation, the ICB simply tends to further fragment supervision and the financial institutions along national lines and undercuts reform efforts with an international thrust aimed at creating a supranational supervisory and resolution regime.

## 3. How much equity capital is enough?

**282.** Experiences in recent years have shown that systemic banking crises cause high macroeconomic costs and therefore the financial system needs to be equipped with far higher buffers to absorb such shocks. The buffers should be created by the financial institutions, although they can be maintained both inside and outside the banks. **External buffers** would, for example, be deposit insurance funds and the German restructuring funds with which the systemically-important parts of a bank can be supported and the non-systemically important sections liquidated (JG 2010, items 305 ff.). However, the external buffers created to date both at the national and at the supranational level have not sufficed in terms of financial resources in order to assist large, trans-nationally active financial institutions that have been hit without first resorting to additional state funding. Thus, the **internal buffers**, meaning the equity capital of financial institutions, must be accordingly high in order to absorb the strain. When defining the scale of equity capital required, the first thing is to address the question of the costs and benefits of equity capital. It is crucial in this context that a distinction is made between individual entity and macroeconomic costs and benefits.

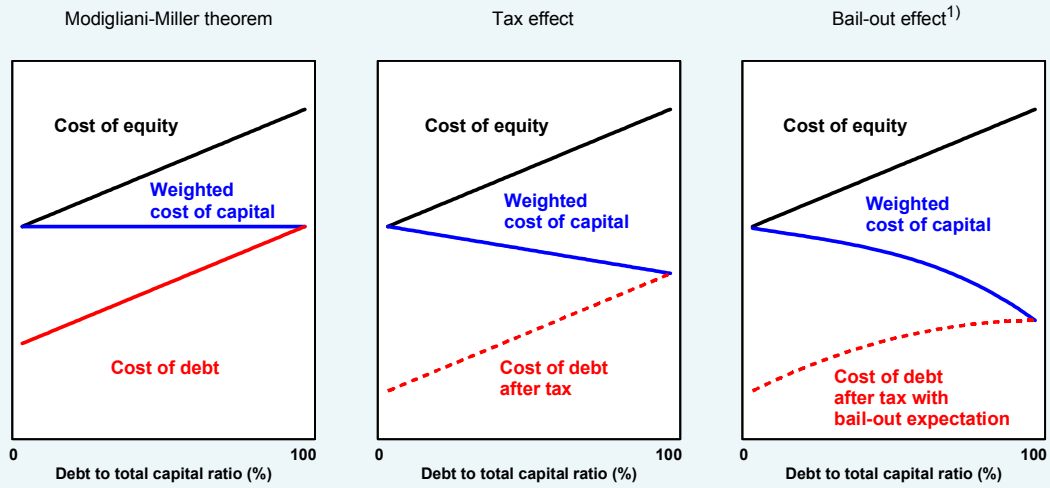
### Costs and benefits of equity capital requirements

**283.** It is the unanimous opinion of financial sector practitioners that equity is expensive, something we can attribute to the traditionally high returns on equity. According to this view, higher capital requirements lead to higher capital costs and thus to rising credit interest and lower credit volumes and finally by reducing investment activities to lower growth. Economists do not share this view.

**284.** Deliberations on the capital structure of a company hinge on the **Modigliani-Miller theorem** (Modigliani & Miller, 1958). This shows that a company's overall refinancing costs do not vary according to capital structure. Since the costs of equity and of debt are weighted with their respective share of the total capital, total refinancing costs remain constant if the capital ratio changes (Chart 40, left). Because more equity means a lower risk for the shareholders, who therefore demand a lower risk premium for their investment and lower their expected return. At the same time, this lower risk leads to a proportional fall in the cost of debt. Assuming this, along with the capital structure the costs structure changes such that the weighted cost of capital remain constant and a higher proportion of equity is thus not more expensive for the company.

Chart 40

**Stylised description of the Modigliani-Miller theorem**




1) Own diagram.

Source: FSA (2009)



**285.** The Modigliani-Miller theorem only applies if there are no distortions that affect the two types of capital to different degrees. Alongside distortions such as can be attributed to asymmetries in information, there are at least two types of state intervention that influence the return on debt differently than that on equity (FSA, 2009). Firstly, a company's debt receives preferential fiscal treatment compared to equity as **interest payments are tax deductibles**. By contrast, dividend disbursements cannot be charged as capital costs against tax. Tax reductions for servicing debt lowers the cost of debt in general, such that the weighted capital costs fall the higher the degree of debt (Chart 40, centre).

Secondly, the state subsidizes providers of debt by **explicit and implicit guarantees** for SIFIs, as it protects them in the event of insolvency against losses that erase the assets of equity owners (Chart 40, right). In this way, from the company's viewpoint debt is more favourable than equity. When practitioners say that equity capital causes higher costs they would seem to be right. However, they are not if this in-company view is placed in the macroeconomic context. Because in the event of a crisis the implicit guarantee on the debt

means that society shoulders the costs, and the company costs and benefits do not therefore tally with the macroeconomic ones.

A subsidiary question is whether higher equity capital requirements automatically spell restrictions in loan approvals, as this is not clear from either the theoretical or the empirical perspective (Box 12).

Box 12

**Empirical studies on the costs of higher equity capital requirements**

Empirical studies bear out the theoretical hypothesis that higher equity capital requirements only generate minor banking operation and macroeconomic costs.

**Effect on credit interest rates**

If a bank's refinancing costs rise owing to higher capital requirements, this does not necessarily mean that the refinancing costs get entirely placed on the debtors' doorstep and asset-side credit interest rises to the same extent (Elliott, 2010a, 2009, 2010b). In fact, various avenues are open to banks to respond to higher capital requirements. For example, interest margins, remuneration and administrative costs can be reduced.

Various studies examine the direct link between the equity to assets ratio and credit interest. One study analyses US banks in the period from 1920 to 2009 (Kashyap et al., 2010). The results on univariate and multivariate regressions show no robust link between a bank's capital structure and different levels of credit costs. Another study explores this linkage for 13 OECD countries from 1993 to 2007 (King, 2010). Calculations show that a rise in the capital requirement of one percentage point on average pushes credit interest up 15 basis points. If the calculation considers the adjustment of other variables (e.g., efficiency-boosting measures to lower operating costs), then the rise in credit interest is even less.

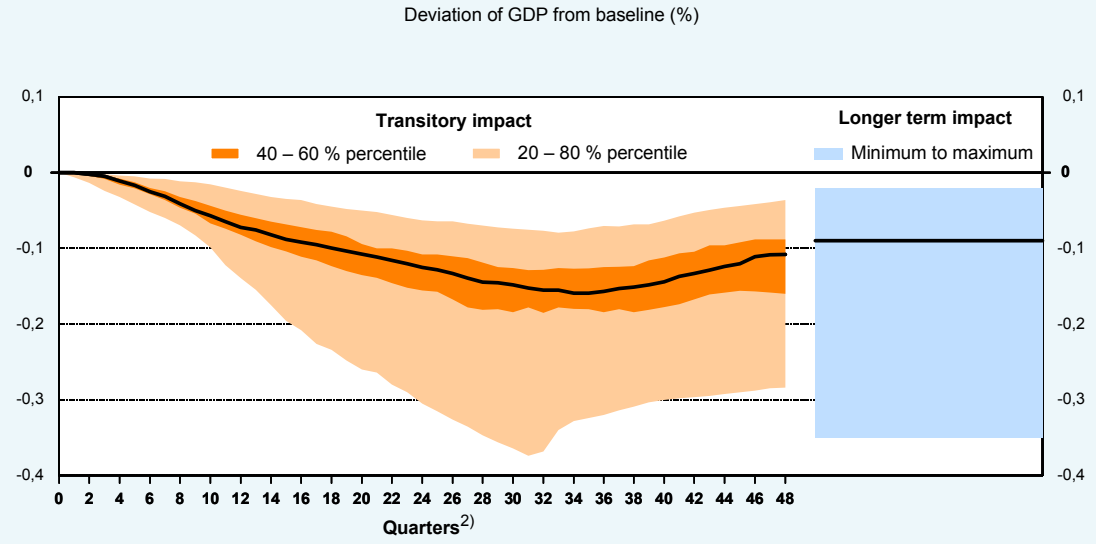
**Effect on gross domestic product**

When analysing the impact of the higher capital ratios set in Basel III on GDP, a difference is made between the medium-term (transitory) and long-term (permanent) effects. Transitional effects on output can arise when adjusting to the increasing capital requirements. A study by the Macroeconomic Assessment Group of the Financial Stability Board (FSB) and BCBS (MAG, 2010a) points to moderate transitory output effects (Chart 41). A rise in the risk-weighted capital ratio by one percentage point leads in the country median to a decrease in output by a maximum 0.16 %, compared to the base scenario without the stipulations of the Basel III accord. Other studies that assume in part shorter transitional phases and thus faster adjustment tracks come to very similar conclusions (Slovik & Cournède, 2011; MAG, 2010b).

Moreover, various studies analyse the long-term impact of higher capital requirements on GDP (BCBS, 2010b; Angelini et al., 2011). These likewise rely on different macroeconomic models that are calibrated for the globally important players such as the Eurozone, the United Kingdom and the United States. The result: an increase in the capital ratio of one percentage point lowers the median for equally-weighted output compared with the base scenario without a higher capital requirement by 0.09 % long term (Chart 41). The underlying models forecast a minimum and a maximum loss of output of 0.02 % and 0.35 % respectively over the base scenario. On balance, we can therefore assume minor effects on GDP in the long term.

Chart 41

**Transitory and long term impact of Basel III capital requirements on GDP**[1)]




1) 1 percentage point increase of the risk-weihgted capital ratio. Various simulation models: transitory impact computed across 89 cases and long term impact computed across 13 cases.– 2) Since the beginning of the Basel III capital implementation.

Sources: BCBS (2010b), MAG (2010)



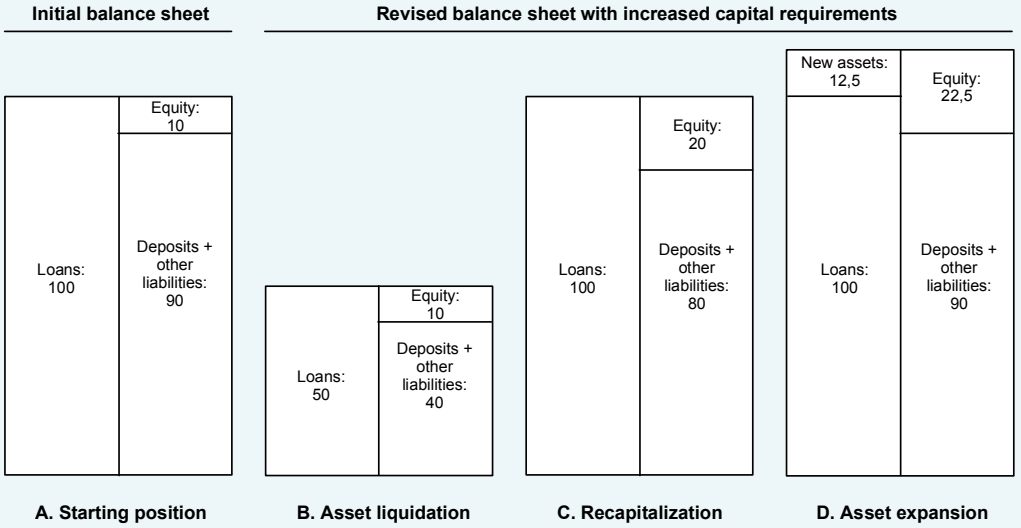
**286.** Essentially, banks adjust to higher capital requirements in various way and thus maintain or even expand their credit book (Admati et al., 2011). An example by way of illustration: a bank has total assets of € 100. The regulatory equity should in the initial situation be at least 10 % of total assets, meaning the bank grants € 100 in loans that are then financed by € 10 of equity capital and € 90 of deposits and other liabilities (Chart 42, A). The capital requirement then gets raised to 20 % of total assets. The first option is for the bank to reduce its balance sheet (Chart 42, B). The degree of indebtedness is lowered with loan approvals being cut by € 50 and liabilities by € 90 to € 40. The second option is for the bank to recapitalize (Chart 42, C). The size of the balance sheet (and thus the loans volume) is maintained by reducing the liabilities by € 10 and raising the equity capital by € 10. As a third option, the higher capital requirement can be met without cutting credit lines and liabilities (Chart 42, D). The additional equity capital of € 12.50 taken up actually expands the balance sheet and credit lines, too. A glance at the studies of how banks adjust in response to higher capital requirements indicates that in the short term friction can arise in loan approvals, but in the long term the strategy tends to be to raise capitalization (VanHoose, 2008).

**287.** The possible company and macroeconomic costs of higher equity capital should be juxtaposed to the **macroeconomic benefits** of lowering the frequency and intensity of systemic financial crises (BCBS, 2010b). Historical findings show that banking crises on average occur every 20-25 years. The higher capital requirements make banks more resilient to economic shocks and they can then better offset volatility in their assets, significantly reducing the probability of banking crises (BCBS, 2010b; Barrell, Davis, Fic, et al., 2009;

Barrell, Davis, Karim, et al., 2009). Higher capital buffers also significantly reduce the amplitude of the economic cycle as the higher capital ratio restricts loan approvals in a boom phase and thus has an anti-cyclical effect, helping to lessen excessive loans approvals and debt in upturn and boom phases, both of which pose additional dangers in the subsequent downturn. At the same time, banks with a higher capital buffer have more flexibility in a recession and can then more easily absorb losses (BCBS, 2010b).

Chart 42

**Alternative responses of banks to increased capital requirements**




Source: Admati et al. (2011)



**288.** Given the fact that an effective, cross-border insolvency regime for SIFIs is probably a very long way off, the arguments in favour of far higher equity capital are all the stronger. These arguments apply to the banking system in general and to **SIFIs** in particular. Greater resilience by SIFIs brings considerable macroeconomic benefits by decreasing the frequency and intensity of systemic crises. Cost/benefit analyses indicate that **capital requirements of up to 20 % of the risk-weighted assets** on balance more than offset the resultant costs and thus constitute a macroeconomic gain from regulation (Miles et al., 2011; BCBS, 2010b; Barrell et al., 2009). In other words, this should be a desirable target for regulators. To the extent that implementation is geared to the schedule of the Basel III accord, i.e., takes through to 2019, there should be only a limited danger of possible bottlenecks in the capital market that could create problems when establishing additional capital buffers.

### Need for a robust regulatory framework

**289.** The capital regulation follows several, possibly contradictory goals: equity capital is supposed to serve as a buffer for unforeseen losses, to protect against default, and to reduce incentives to assume higher risks.

The Basel approach hinges on the desire to manage an institution's overall risk by means of as accurate an assessment as possible of the risks of individual assets and suitable risk weightings. Basel I was advanced to the point of Basel III by constantly refining the risk weightings and making them more precise. This was necessary not only because older risk models proved inaccurate, but also because banks responded to the incentive structure set by the rules and exploited existing gaps in regulation. All in all, the **risk-weighted capital regulations have proved not to be sufficiently robust on various occasions** as the internal models developed by the banks themselves to define risk weightings and external models used by rating agencies in crisis situations did not manage to reflect actual risks. Critics of the Basel approach also question whether close management of company, sector and of systemic risks is at all theoretically or practically possible. This view suggests that capital regulation will invariably fail when trying to control risks taken, especially if they are systemic risks (Hellwig, 2010).

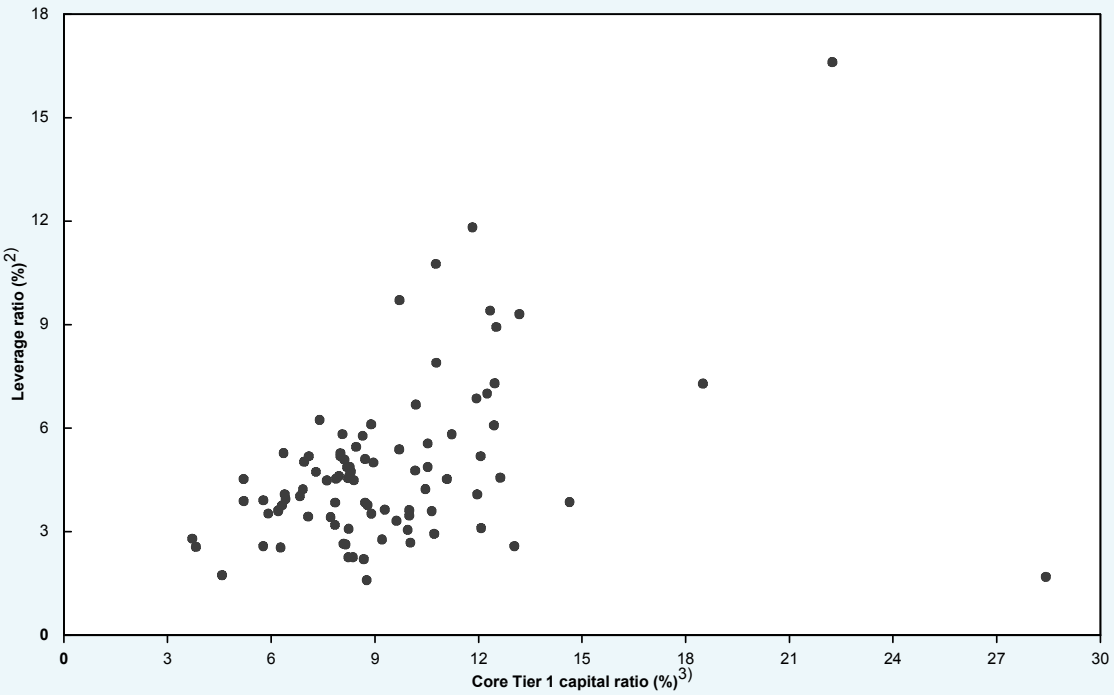
**290.** One way of avoiding the need for a risk weighting is the method of a **leverage ratio** that relates regulatory equity to the (non-risk-adjusted) total assets. In other words, the leverage ratio weights all assets at 100 % and for this reason is armed against false risk assessments. Retrospectively, with an appropriate leverage ratio the system would have been less prone to risks of government bonds, as these like all other claims would by definition not have been included in the capital regulation weighted with zero but at the full risk weighting.

A comparison of the 90 European banks subjected to the EBA stress test in June 2011 shows that the risk-weighted capital ratios and the leverage ratio (calculated here as the ratio of Core Tier 1 capital to total assets) are indeed different variables. The two yardsticks seemingly only correlate weakly. Numerous banks that are purportedly "low risk" according to the risk-weighted method have highly leveraged debt and thus a low balance-sheet leverage ratio (Chart 43).

**291.** However, the leverage ratio is not **definitively defined and generally valid**. Leverage ratios can differ in terms of the definition for the enumerator, depending on whether a broad or a narrow scale of equity capital is assumed. Furthermore, there are striking differences depending on whether the financial statements are prepared according to US-GAAP or IFRS. In particular US-GAAP permits, compared to IFRS, a far more extensive mutual netting of derivative items, meaning that one and the same balance sheet comes out far shorter under US-GAAP than under IFRS. The differences and difficulties that arise when calculating the leverage ratio if identical definitions of equity capital are used but with respectively different definitions of the total assets are clearly shown by Deutsche Bank's reported figures (Table 18). The Deutsche Bank total assets pursuant to IFRS was as at Q3 2011 almost € 2.3 trillion and the equity € 53.1 billion. On the basis of these figures, the leverage ratio would be 2.3 %. Deutsche Bank relies in its key financials on a reconciliation in which the total assets under IFRS are adjusted such that it approximates one drawn up pursuant to US-GAAP. The latter total assets are more than 43 % lower than that under IFRS and comes to € 1.3 trillion. The leverage ratio calculated according to the US-GAAP figure for equity of € 57.6 billion is then a good 4.4 %.

Chart 43

**European banks' Core Tier 1 capital ratio and leverage ratio 2010**[1)]




1) Own calculations, based on the banking stress test 2011; source of base data: EBA. Core Tier 1 capital: end of 2010; total assets: taking into account all planned measures until April, 30th 2011.– 2) Core Tier 1 capital as a ratio of total assets.– 3) Core Tier 1 capital as a ratio of risk-weighted assets.



**292.** The **Basel definition** is intended to set a new standard as regards the leverage ratio and in particular to harmonize the different accounting systems and among other things ensure the uniform treatment of derivatives. Furthermore, the Basel definition expands the adjusted total assets to include off-balance-sheet items such that the leverage ratio according to Basel III should be lower than one that exclusively factors in risk-unweighted balance-sheet items. According to the Basel definition the average leverage ratio for the group of the largest German banks is only 1.3 %. By comparison, the balance-sheet leverage ratio (Tier 1 capital to total assets) for the German banks that participated in the EBA stress test in 2011 was around 3.3 %. To obtain a sound basis for all further discussion of the leverage ratio it therefore seems urgently necessary to bring forward the **publication of a uniform leverage ratio applying to all countries** originally planned for 2015.

Despite the definitional difficulties, both the balance-sheet and the Basel leverage ratios impressively indicate how frighteningly high the debt leverage is and thus how thin capital coverage, and thus how vulnerable the system potentially is.

**293.** In the Basel rules, the leverage ratio only plays a subordinate role and is set to come to bear only after a monitoring phase and then only as an additional corrective. The idea is to set the minimum debt ratio (Tier 1 capital to adjusted total assets, including off-balance-sheet items) at 3.0 %. To make the banking system more impervious to shocks, much would suggest deploying a leverage ratio not just in a subsidiary role to capital regulation. Going

forward, the leverage ratio should have the primary function of delivering a sound buffer that is immune to modelling risks and attempts to circumvent the risk-weighted capital requirements and to dam the reliance on excessive debt. The risk-weighted capital requirements would then also serve to protect against overly great risks being shouldered.

Table 18

**Deutsche Bank: key financial figures**[1)]

| Balance-sheet ratios | | | Regulatory ratios | |
|---|---|---|---|---|
| | IFRS | US-GAAP | | Euro million |
| | Euro billion | | | |
| Total assets | 2 282 | 1 296 | (1) Tier 1 capital | 46 638 |
| | | | thereunder: Core Tier 1 capital | 34 090 |
| Total equity | 53,1 | 57,6 | (2) Tier 2 capital | 5 175 |
| | | | Total regulatory capital (1) + (2) | 51 814 |
| Total equity to total assets | | | Risk-weighted assets | 337 618 |
| "Leverage Ratio" [2)] | 2,3 | 4,4 | Core Tier 1 capital ratio (%) | 10,1 |
| | | | Tier 1 capital ratio (%) | 13,8 |
| | | | Total regulatory capital as a ratio of risk-weighted assets (%) | 15,3 |

1) As at the end of Q3 2011; see also www.db.com/ir/en/download/FDS_3Q2011.pdf.– 2) In Percent.

Source: Deutsche Bank

**294.** As early as 2008 the German Council of Economic Experts called for a leverage ratio of up to 5 % (JG 2008, item 290). In Switzerland, the prospects are that a leverage ratio of 5 % will be introduced for SIFIs. In the opinion of various renowned economists, the leverage ratio should be significantly higher. There is even a call for a leverage ratio of up to 30 % (Hellwig, 2011) and the German Federal Ministry of Economics and Technology's Scholarly Advisory Council has called for a leverage ratio of well over 10 % (Wissenschaftlicher Beirat beim BMWi, 2010). However, it is hard to compare such ideas until such a time as a uniform definition of the leverage ratio is applied.

Depending on the different underlying valuation yardsticks used, these proposals imply a gross debt ratio by banks of a factor of between 3.3 and 20 times their equity capital. From the viewpoint of the German Council of Economic Experts it would seem appropriate to limit the balance-sheet and off-balance-sheet activities of a bank on the basis of the Basel definition to 20 times its Tier 1 capital, which translates into a **leverage ratio according to Basel III of 5 %** and would most likely spell a balance-sheet leverage ratio of about twice that. The BCBS's proposed leverage ratio of 3 % could be taken as the starting point and gradually be stepped up. Accompanying evaluation studies should examine the financial and macroeconomic impact on a continuous basis and relate them respectively to the macroeconomic benefit(s) of a robust financial system.

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