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COMPARING RISK-WEIGHTED ASSETS: THE IMPORTANCE OF SUPERVISORY VALIDATION PROCESSES

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COMPARING RISK-WEIGHTED ASSETS: THE IMPORTANCE OF SUPERVISORY VALIDATION PROCESSES

This article analyses the problems of using the risk-weighted assets (RWA) density ratio – defined as the ratio of RWA to total assets – to make comparisons across banks, as is frequently done by banks themselves and analysts. An international comparison is made of 16 European banks, based on public information, from which it is concluded that a significant part of the differences in RWA density are a consequence of differences in the type of business involved. In particular, the greater the weight of credit risk in a bank's balance sheet the higher will be its RWA density. We propose alternative RWA density ratios and illustrate them with the results for Spanish banks using confidential data. We show that public information cannot be sufficiently detailed to enable differences across banks arising from their risk profiles to be distinguished from others attributable, for example, to different interpretations of solvency rules by banks or supervisors. Therefore, the supervisory review process and the progress in its inter-jurisdictional harmonisation are especially important. The paper concludes with a review of the process used by the Banco de España for the supervisory validation of Internal Ratings Based (IRB) approaches for credit risk.

1 Introduction

The recent crisis and the discussions on Basel III have focused attention on the need to improve the quality of banks' capital and to increase their capital ratios, relegating some of the objectives of Basel II to the background. However, in our view an appropriate combination of Basel II and III is a necessary condition for avoiding future crises.

It is worth briefly reviewing the transition from Basel I (1988) to Basel III (2010), through Basel II (2004), to understand what the current situation is and to reflect on what it should be. Basel I managed to establish minimum solvency requirements at the international level and a level playing field that did not previously exist. The requirements took the form of a minimum solvency ratio of 8%, the result of dividing eligible capital by the so-called risk-weighted assets (RWA).[1] However, their lack of sensitivity to risk led to regulatory arbitrage[2], which is why Basel II focused on improving the calculation of the risk to which banks are exposed, i.e. the denominator of the solvency ratio (RWA), on the assumption that the system's capital was appropriate. Indeed, Basel II was calibrated so that this level of capital would not vary for the system as a whole. The experience following the implementation of Basel I appeared to support the view that this volume of capital was sufficient to withstand potential crises.

The full emphasis of Basel II was placed on providing incentives to enhance banks' risk management under the premise that capital can never be a substitute for good management and appropriate risk control. The aim was to draw regulatory capital closer to economic capital with more risk-sensitive capital requirements calculation systems, including the use of internal models.[3] Unfortunately, just as Basel II (2007-2008) was entering into force,

1 RWA were the result of multiplying exposures by weighting coefficients. One of the following four weighting factors was applied to each type of exposure: 0%, 20%, 50% or 100%. Thus, for example, public debt issued by sovereign States would be weighted at 0% if they belonged to the OECD, and a weight of 100% would be applied to corporate and retail exposures (except mortgages, which would be weighted at 50%).

2 The difference between regulatory capital and economic capital encouraged banks to take lower-risk exposures off their balance sheets.

3 In the specific case of credit risk, Basel II envisages two alternatives for calculating minimum capital requirements. The first is the standardised approach which, using external ratings and extending the number of weightings, allows for better assessment of borrower creditworthiness than Basel I. The other method, the Internal Ratings Based approach, draws as its name suggests on the use of internal ratings.

the biggest financial crisis of recent history broke. Clearly, this had little to do with Basel II; rather, it was the result of what Basel II was seeking to correct, i.e. the poor assessment and management of the risks to which banks were exposed. The crisis highlighted the fact that there was a lack of high quality capital. All these developments speeded up the preparation of Basel III, this time under the premise that it was necessary to require more capital and of better quality, and that trading book requirements had to be tightened so that the system was better prepared for future crises.

Crises almost always start on the side of the solvency ratio denominator (RWA), i.e. due to inappropriate risk management and measurement. In this crisis a major role was played by the pressure on banks to attain high returns. Such returns were relatively unsustainable over the long run and, in many cases, were achieved with products which, under a halo of "financial innovation", offered a very high return/risk ratio as a result of the inappropriate valuation of their risks and, therefore, of their price. The denominator is the most complex part of the solvency ratio, posing most calculation difficulties (it must reflect the risks to which a bank is exposed), and the most costly to supervise.

In short, Basel II focused on the denominator of the solvency ratio, seeking to have capital requirements that reflect more accurately the risks taken by banks (for more risk, more capital). Basel III changes none of the foregoing, simply adding to it; but, by focusing on the numerator of the ratio, it may give the impression that Basel II has been superseded and that it suffices to have more capital. Yet one of the guiding principles of Basel II, namely that capital cannot replace the sound management and proper control of risks, remains fully valid. A denominator that were not sensitive to risk would again be the precursor of a fresh crisis. Risk-insensitive measures can only lead to greater regulatory arbitrage and competitive distortions. In this respect, internal models continue to play an essential role, bearing in mind - as always - their limitations.

One of the main uncertainties surrounding Basel III is knowing the impact it will have on banks' behaviour. The perception is that this impact will not be insignificant, and much of it will be through the solvency ratio denominator, i.e. via risk management. The greater the pressure to increase the numerator, the greater will be the pressure to reduce the denominator by various means. Ultimately what counts is the ratio itself.

Basel III mainly alters the numerator of the solvency ratio, and requires more capital and of greater quality, but what banks must initially comply with is a now-familiar ratio, of 8%. How can the 8% solvency ratio be achieved under Basel III? There are several alternatives. The most desirable one would be to increase capital in absolute terms, but other possibilities exist: to change the risk profile (for example, moving from private debt to high quality sovereign debt, increasing the levels of collateral on operations, lending less, selling assets...) or to attempt to reduce the estimate of RWA. In this latter case, banks with internal models will now have more incentives to make changes that reduce their requirements, and standardised-approach banks are expected to develop to a greater extent the risk mitigation techniques that they have not so far fully exploited.

In this setting, there has been a proliferation of the comparisons that banks themselves and other market participants make in terms of what they call "density of RWA", that is, the ratio of RWA to total assets. This simple measure, which – applied using public information – shows a range of variation that fluctuates from 15% to almost 60% for European international IRB banks, is used to support widely different conclusions. Banks in the lower range usually attribute this result to differences in risk profile, while those in

the upper segment (Spanish banks among them) attribute the difference mainly to inter-jurisdictional divergences in the calculation of RWA.

As is usually the case, neither of the two extremes is right. But it does re-open an old debate on the extent to which the RWA of different banks are comparable. In this case, the focus falls particularly on the calculations of banks with approved models for their regulatory use. The variability seen in these calculations offers support to proposals such as a return to Basel I or even to simpler measures, such as leverage ratios, forgetting, as previously discussed, that Basel II arose to avoid the lack of comparability "in terms of risk" of RWA under Basel I. There is also a tendency to forget that the dispersion of the density of RWA, if it were ever really informative, is also very high at standardised-approach banks, fluctuating in a way depending on the type of activity from values close to 0% in some cases to 150% in others, which are the two extremes of weights under the standardised approach. The question that needs answering is whether matters are better or worse in terms of the comparability of capital requirements with Basel II. This article addresses this issue for the particular case of credit risk.

While not the aim of this paper, it is worth remarking that the measurement of the soundness of a bank is often confused with the measurement of its capital ratio. However, although this ratio has a role to play in the measurement of the soundness of banks, other relevant factors are occasionally overlooked, such as risk management and internal control capabilities, recurrence and diversification of results, accessibility to capital markets, the sustainability of funding structures, operating markets, etc. In short, all the factors that make up a bank's risk profile.

The article comprises six sections. The following section discusses some of the problems posed by the density ratio of RWA frequently used by analysts and banks to make comparisons across banks, and some alternatives in the field of credit risk are proposed. Two comparisons between banks then follow, the first at the international level, using public information, and the second at the national level, based on confidential data. The fifth section sets out the process followed by the Banco de España in the supervisory validation of IRB credit risk approaches. Finally, the main conclusions of the paper are drawn.

2 Problems with the RWA density ratio and alternatives

There has been growing concern for some time among banks and supervisors about cross-bank and cross-country consistency in the calculation of risk-weighted assets (RWA) in the context of solvency regulations. There is interest in this matter because, as is known, RWA are used in the denominator of the various capital ratios[4] set in different solvency regulations, thus acting as a yardstick for deciding whether banks' eligible own funds are sufficient.[5] Accordingly, if there are unwarranted differences in the calculation of

4 Capital ratios with RWA as their denominator are occasionally called risk-based ratios so as to distinguish them from leverage ratios, whose denominator basically consists of the book value of total assets, with certain adjustments and additions.

5 It should be pointed out here that, as the current status of the solvency regulations stands, the concept of "risk-weighted assets" is perhaps being overemphasised, and may occasionally lead to some confusion. True, under Basel I and the Basel II standardised approach to credit risk, a weighting of "assets" – actually, exposures, including certain off-balance sheet items – is made as a prior step to calculating capital requirements, defined as 8% of weighted assets (the minimum value required for the total capital ratio). However, in many cases (the IRB approach for credit risk, market risk, operational risk...) such prior weighting is not carried out; rather, the capital requirements are calculated following different procedures, and the RWA are derived – a posteriori – by multiplying them by a factor, 12.5, directly related to the total capital ratio required (12.5 is the inverse of 8% or 0.08). Given that, moreover, several capital ratios have at present been explicitly defined in respect of solvency regulations, with different minimum percentages depending on the capital aggregate considered, it is natural to enquire about the suitability of the RWA concept, which in the best of cases is an intermediate variable, and at worst a purely conventional calculation.

RWA, distortions will arise in the measurement of banks' solvency, which will be to the detriment of a level playing field for banks and their competitiveness.

In order to analyse the consistency of RWA in the context of solvency regulations, certain agents – chiefly international banks and analysts – have been using the *Risk-Weighted Assets*/*Total Assets* (RWA/TA) or density ratio. This ratio compares total regulatory weighted assets with banks' total balance sheet, and it may be interpreted as a measure of the average relative risk – according to regulatory criteria – of a bank's overall operations. The disclosure of notable differences in the value of this ratio from bank to bank and from country to country has led some to conclude – to denounce, it might be said – that the calculation of RWA is not carried out consistently, and that there must be significant and unwarranted differences in banks' calculation methodologies and in supervisors' criteria.

This section examines whether this conclusion is warranted. Also, adopting a broader perspective, the section reflects on what would be the appropriate use that could be given to this type of ratio, in which a measure of risk and a measure of exposure are related, and a ratio that might be useful is proposed.

Focusing on the RWA/TA ratio, it should be said there are good reasons why this measure should differ from bank to bank, without having to resort to undesirable differences in the methodologies or criteria applied (which cannot be ruled out either). Among such reasons are the following:

- Regarding the numerator *(Risk-Weighted Assets):*

  - It should not be forgotten that regulatory RWA are derived from the application of a solvency framework that seeks to be risk-sensitive: the greater the risk taken by banks, the greater RWA should be in relation to their "assets".[6]

    Thus, the risk profile of banks should have a significant effect on the value of this ratio. This profile can be reflected in various aspects: banks' balance-sheet structure (the relative weight of their different portfolios), the quality of the assets included in each portfolio, the geographical areas in which they operate, the types of business in which they engage (commercial banking, investment banking, *bancassurance…).* Those banks focusing on what are considered as low-risk activities, or whose investments are of higher quality, should show lower ratios.

  - Another aspect to bear in mind is that RWA are the outcome of a weighting of assets based only on their risk of unexpected loss, and they do not take into account the risk of expected loss. The breakdown of total risk into these two components may differ substantially across banks depending on the type of business pursued, so that the numerator of the ratio offers a partial view of the risk taken or of the regulatory requirements made.

6 The term is in inverted commas to highlight the fact that in many cases it refers not only to on-balance sheet assets, but also to off-balance sheet items. A more appropriate term would be 'exposures', also commonly used, which covers both on and off-balance sheet items.

– As to the denominator *(Total Assets),* the use of the total balance sheet poses various problems in respect of comparison with RWA:

  – Not all RWA arise from weighting balance sheet assets in the proper sense of the term: evident examples are RWA relating to contingent exposures and commitments (guarantees extended, undrawn amounts in credit accounts), short positions in financial instruments, financial derivatives, etc. On the contrary, there are balance sheet assets to which the regulations do not apply the weighting and capital requirements scheme, opting instead, conventionally, for deducting them from eligible own funds; that is the case, for example, of intangible assets, such as goodwill, certain holdings in other companies, some securitisations, etc. Operations such as the foregoing mean that some components of the numerator have no reflection in the denominator, and vice-versa: the RWA/TA ratio is inconsistent by definition.

  – Another source of inconsistency arises from the fact that the ratio mixes risks whose requirements are calculated on the basis of "assets" (or rather, as noted, exposures), such as credit risk, with others that use methodologies whose relationship to balance sheet assets is less direct, as occurs with market and operational risk, and where a "weighted assets/assets" ratio is not really adequate. This matter is particularly serious when banks whose type of business is very different (e.g. commercial banks versus investment banks) are compared.

  – Furthermore, differences in the accounting criteria applied to certain operations may mean the value of total assets is very different under different regulations[7], prompting likewise notable differences in the ratio. This especially affects trading book operations.

In this context, it would be unwarranted to state that the differences in the RWA/TA ratio are principally due to possible inconsistencies in the methodologies for calculating RWA or in supervisors' criteria, even though it cannot be ruled out that such inconsistencies may exist.

The flaws exposed in this ratio have raised doubts over its usefulness as an analytical tool: in particular, its intrinsic inconsistency and the fact that, by attempting to cover all the bank's activity, its value is influenced by a multitude of different factors whose effect is difficult to assess (balance sheet structure, investment policies, type of business, operations and also the calculation methodologies for RWA). Indeed, it is likely that their use will readily lead to mistaken conclusions. If the aim is to detect methodological or criteria-related inconsistencies in the calculation of RWA across banks, this ratio does not appear to be overly useful.

It is worth asking whether a ratio (or a set of ratios) could be designed to measure the relative risk taken by banks, that does not have the shortcomings of the one discussed above (or that has them in a less serious form), so that more appropriate comparisons can be made. To do this, a measure of the risk taken should be set against a measure of the

7 Ledo, M. (2011) mentions two real, and telling, examples of to what extent total assets may differ under US-GAAP and IFRS.

exposure that has given rise to this risk. It seems reasonable to require that any ratio of this type should meet the following conditions:

- *Consistency:* there should be no risks in the numerator whose exposure is not reflected in the denominator.

- *Completeness:* all exposures that are relevant in the context of analysis should be included in the denominator, and all significant risks associated with such exposures should appear in the numerator.

In the area of solvency regulations, the construction of ratios of this type would involve using capital requirements (or their equivalent RWA) in the numerator, and it seems reasonable to also include expected losses in the case of credit risk, since they are actually part of the regulatory estimate of risk and, moreover, their amount is by no means insignificant. As a result, a measure of the relative risk assumed by banks in accordance with regulatory criteria would be obtained, as would, therefore, a measure of the relative effort that regulations require of banks in terms of own funds required relative to exposures held. Unfortunately, it seems difficult to find an "overall" ratio, similar to that criticised above, which consistently measures the risks incurred by banks, due above all to the fact that, as said, the requirements are calculated in very different ways for the different risks envisaged (credit, market and operational risk, mainly), and the concept of exposure is not clearly defined in certain cases (market and operational risk).

Consequently, a ratio of this type will be all the more significant and useful the more restricted and uniform the area to which it is applied. Focusing on credit risk, it does seem possible to design useful ratios that meet the conditions mentioned above, although certain particularities of the two fundamental approaches for calculating requirements should be borne in mind; in short:

- *Standardised approach:* capital requirements are calculated from the exposure at default (EAD[8]) *net of provisions,* similarly to under Basel I. This implicitly assumes that capital requirements cover estimated unexpected losses arising from exposures, and that provisions cover expected losses.

- *Internal Ratings Based (IRB) approach:* capital requirements are calculated from *gross* EAD (provisions not deducted). Expected losses (EL) are calculated explicitly and the difference between provisions and EL is included, subject to an upper limit, in regulatory capital (i.e. EL are treated as a deduction from regulatory capital).

Given these differences, if it is wished to treat these two approaches together or to compare their respective regulatory capital requirements, it seems reasonable to define the ratio as follows:

- *Numerator:* capital requirements *plus* expected losses, so as to reflect all regulatory 'capital' requirements (all the estimated risk of loss). For exposures

8 This is the fundamental measure of exposure used in credit risk regulatory capital calculations, to which risk weights and expected loss estimates are applied to calculate RWA and expected loss amounts (the latter only in the case of the IRB approach).

treated under the standardised approach, given that expected losses are not calculated explicitly, it is necessary to make certain assumptions in this respect. Since the loss estimates used are derived from the legal regulations, it would seem adequate to use the assumption implicit in the regulations for that approach (expected losses are covered by provisions) and take the best estimate of expected losses under the standardised approach to be the provisions booked.[9]

– *Denominator:* with a view to encompassing both on-balance-sheet assets and off-balance-sheet contingent exposures and commitments, it would seem most appropriate to use the same concept of exposure as that used to calculate capital requirements and EL, namely EAD, since this includes off-balance-sheet exposures through the application of conversion factors which transform them into equivalent on-balance-sheet amounts. It is also of interest that the exposures treated under the standardised approach should be made as consistent as possible with those used under the IRB approach, by taking their gross value, i.e. not net of provisions.

This would give the following theoretical ratio:

$$\frac{\text{Capital requirements + Expected credit losses}}{\text{Gross exposure}}$$

Or, more specifically:

$$\frac{(\text{Capital req. + EL})_{\text{IRB}} + (\text{Capital req. + Provisions})_{\text{STA}}}{\text{Gross EAD}}$$

where gross EAD = $(\text{EAD})_{\text{IRB}} + (\text{EAD + Provisions})_{\text{STA}}$.

In terms of risk-weighted assets, the ratio would be:

$$\frac{12.5 \times [(\text{Capital req. + EL})_{\text{IRB}} + (\text{Capital req. + Provisions})_{\text{STA}}]}{\text{Gross EAD}}$$

Hence, in the area of credit risk, a consistently defined ratio is obtained that includes all the regulatory capital requirements for the exposures in question (i.e. a regulatory estimate of the risks taken) and whose value represents the sum of the average risk-weight and the average expected loss (multiplied by 12.5), which are applied to the total EAD considered. This ratio can be used for banks applying the standardised approach, the IRB approach or both.

However, this ratio is not without its shortcomings and problems. Most notable among these are, firstly, that if the ratio is applied at a high level of aggregation (total credit risk, total IRB approach, total standardised approach, etc.), the result will be the average of a heterogeneous set of diverse approaches, portfolios or exposures. Secondly, that from the standpoint of measuring banks' regulatory capital requirements, the ratio is still somewhat

9 A legitimate criticism here is that often it is not very obvious that there is a close relationship between the risk of expected losses and provisions booked by banks.

incomplete because, as it provides a measure of the regulatory requirements per unit of EAD, it does not show the effect of the credit conversion factors (CCF) that are used to estimate the EAD of off-balance-sheet items: the larger CCF are, the larger the EAD and the larger the volume of RWA and expected losses, although the ratio is practically unaffected.

3 International comparison and shortcomings of public information

As noted in the introduction, the information published by banks has been the subject of numerous studies which have reached contrasting conclusions. Some perceive disproportionate differences in banks' RWA calculations, while others consider that, although not perfect, they are fulfilling their role. Yet others assert that the highest dispersion is found in investment banking, as against those that say it is where there is most homogeneity. The only point on which they are unanimous is the limitations shown by Pillar 3 information and it is generally considered that greater homogeneity would be desirable.[10]

Even the simplest aggregate comparisons become complicated when they have to be made using banks' public information. Furthermore, as the level of aggregation decreases the assumptions needed to compare the information multiply, which perhaps explains why such different conclusions have been reached. Here, therefore, only a simple comparison is made of 16 European international banks[11], based on public information as at December 2010, to illustrate the limitations of the density of RWA – noted in the previous section – as a measure for comparing the consistency of RWA. It is therefore not possible to establish a relationship between the density of RWA and capital ratios to conclude, for example, that a higher RWA density justifies, without further qualification, a lower capital ratio.

Chart 1 plots RWA density against the ratio of exposure at default (EAD) for credit risk to total assets[12]. Banks are ordered by RWA density, number 1 representing the bank with the highest density and number 16 that with the lowest density. The two ratios are highly correlated. Banks with a high weight of lending activity on their balance sheet have a higher density of RWA, i.e. this higher density is largely a result of their type of business. Quite another matter is whether or not the relative distance between banks and the contribution of other risk exposures to RWA are accurate, which is an issue beyond the scope of this study. What does seem clear is that a higher weight of credit risk on the balance sheet produces a higher density of RWA.[13]

10 See Barclays Capital (2011) as an example of the studies that conclude that Basel II RWA calculations leave considerable scope for subjectivity and interpretation. In contrast, see Bernsteinresearch (2011) as an example of those that show that RWA calculations, although not perfect, offer a reasonable estimate of risks. For a comprehensive overview of the concerns surrounding the variations in calculation of RWA see Le Leslé, V., and Avramova, S. (2012).

11 The banks used in the comparison are European, are all internationally active and have a high percentage of their banking book in internal models (IRB). The banks are: Barclays, BBVA, BNP, Commerzbank, Crédit Agricole, Credit Suisse, Deutsche Bank, HSBC, ING, Lloyds, Nordea, RBS, Santander, Société Générale, UBS and Unicredito.

12 Total EAD for credit risk is not, in most cases, explicitly reported in public information, so that estimations have to be made. As Pillar 3 reports do include total RWA for credit risk, and also detailed information at the portfolio level (RWA and EAD in particular), we are able to derive total EAD for credit risk. In those cases where the sum of the RWA of all portfolios is lower than total credit risk RWA, we have assumed a 100% risk weight for the residual value to estimate the EAD. The impact of this assumption is not significant and it does not change the conclusions reached. In all cases considered in the sample, the residual value is lower than 9% of the RWA for credit risk.

13 This situation may change partially under Basel 2.5, since the new capital charges it introduces will substantially increase the capital requirements for the trading book.

RWA DENSITY AND THE RATIO OF CREDIT RISK EAD TO TOTAL ASSETS FOR A SAMPLE OF EUROPEAN BANKS

CHART 1

SOURCES: Financial and Pillar 3 reports by individual banks.
NOTE: The chart plots RWA density against the ratio of exposure at default (EAD) for credit risk to total assets for a sample of 16 European international IRB banks. The banks are: Barclays, BBVA, BNP, Commerzbank, Crédit Agricole, Credit Suisse, Deutsche Bank, HSBC, ING, Lloyds, Nordea, RBS, Santander, Société Générale, UBS and Unicredito. The ratios have been calculated using public information as at December 2010. Banks are ordered by RWA density, number 1 representing the bank with the highest density.

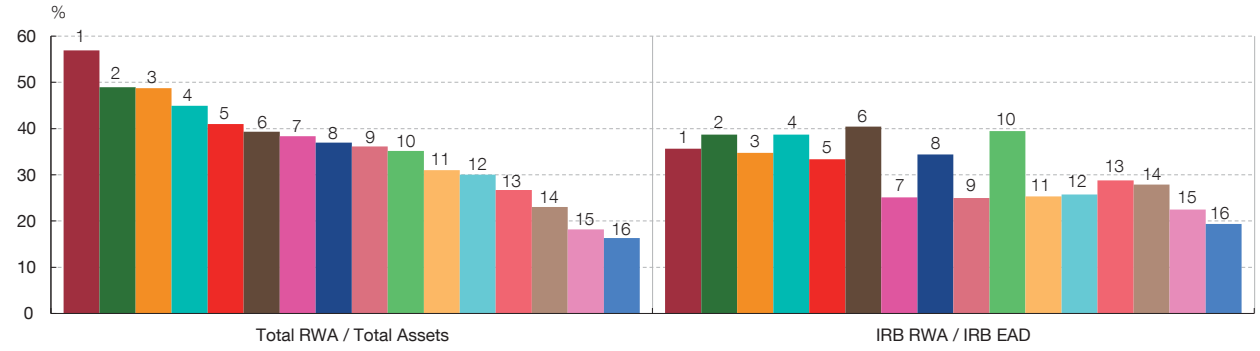
Chart 2 compares the dispersion and order of RWA densities with those of a similar but more consistent measure: the ratio of RWA to EAD in IRB portfolios[14]. In this case, when the comparison is limited to the IRB portfolios and is based on the EAD, the dispersion decreases substantially from a standard deviation of 11% to 7%. Moreover, the order varies and those banks with a greater density of RWA do not have the highest capital requirements for credit risk. For example, the bank with the highest RWA density, 59% higher than the average, ranks fifth in the second ratio, being 15% above the average.

Obviously, significant differences still remain, but the information banks publish gives no insight into whether they are due to differences in the risk profile of the portfolios or to other factors. Also, it should be noted that the banks' data are at the consolidated level, often the result of mixing portfolios of subsidiaries from different countries, so they do not allow the idiosyncratic behaviour of a given portfolio to be linked to the bank's home country. Thus, for example, if the comparison is restricted to a more homogeneous group

14 The IRB portfolios included are: central government and central banks, institutions, corporate and retail.

RWA DENSITY AND THE RATIO OF RWA TO EAD IN IRB PORTFOLIOS FOR A SAMPLE OF EUROPEAN BANKS

CHART 2



SOURCE: Financial and Pillar 3 reports by individual banks.
NOTE: The chart shows RWA density, on the left, and the ratio of RWA to exposure at default (EAD) in IRB portfolios (central government and central banks, institutions, corporate and retail) on the right, for a sample of 16 European international IRB banks. The banks are: Barclays, BBVA, BNP, Commerzbank, Crédit Agricole, Credit Suisse, Deutsche Bank, HSBC, ING, Lloyds, Nordea, RBS, Santander, Société Générale, UBS and Unicredito. The ratios have been calculated using public information as at December 2010. Banks are ordered by RWA density, number 1 representing the bank with the highest density.

of banks, such as the six Spanish banks with approved IRB approaches which do not have significant international activity (not represented in the above charts), the dispersion in terms of RWA density would be less than that in the international comparison, fluctuating from 57% to 72%[15], as a natural consequence of more comparable businesses and a homogeneous supervisory validation process.

There are three possible sources of differences in banks' RWA:

– Different risk profile of their portfolios. This difference would be justified.

– Different progress in implementing advanced approaches, and differences in banking regulation due to areas of national discretion. The latter are not few in number and may have a substantial impact, although they are envisaged in banking regulation.[16] In this connection, efforts are being made at the international level to reduce the areas of national discretion. The differences arising from disparate progress in implementing advanced approaches are generally a more or less logical consequence of the incentives offered to encourage banks to improve their risk management.

– Finally, those due to differing interpretations by banks or supervisors or to less supervisory "pressure" in validation processes. This source of differences is not justified, although it is not difficult to find examples of divergences, not only in validation processes, reflecting the supervisory models in place in each country, but also in the interpretation of banking regulations, from the most complex issues such as the definition of long-run probability of default (PD), the concept of downturn for calculating the loss given default (LGD) and the credit conversion factors (CCF), the treatment of exposures in default or the justification of the number of rating grades to be used,[17] to simpler matters such as the application of certain floors or whether some conservative adjustments should be reflected in risk parameters (Pillar 1) or in Pillar 2.

The difficulty is to determine what part of the differences comes from each source. The main conclusion is that the information included in Pillar 3 reports does not allow us to say whether the differences are due to different risk profiles or to other factors, since not enough details on the regulatory parameters are provided. For example, given two portfolios that are identical in terms of counterparties (the same PD), collateral (the same LGD), size (the same S) and applying the same credit conversion factors (CCF), if one of them has a maturity (M) longer than the other, the minimum capital requirements for the portfolio with the longer maturity may be twice as high. There are many matters not included in sufficient detail in the public information which could be important in calculating capital requirements.

The problem is that, although unquestionably Pillar 3 information can be improved, it is unlikely that it will contain sufficient detail to enable banks to be compared satisfactorily. For this reason, the supervisory review process takes on special importance, particularly

15 Values obtained from public information as at December 2010.

16 The very definition of "default" is an area of national discretion in retail portfolios, as the minimum period of time established to classify a past due exposure as defaulted ranges from 90 to 180 days.

17 The mere grouping of transactions in homogeneous categories may give rise to significant changes in minimum capital requirements, although, in fact, it does not modify the risk associated with the portfolio.

considering that many decisions considered to be "details" may have a major impact on calculations and they cannot be assessed without a thorough review. It is therefore essential to make progress in harmonising supervisory validation processes. This harmonisation is undoubtedly one of the main challenges of the new European Banking Authority, in which it will have to take an active role. Section 5 describes the main characteristics of the supervisory validation process in Spain.

4 Comparison of Spanish IRB and standardised banks

Table 1 shows various RWA density ratios for the Spanish banks applying the standardised approach and for those authorised to use the IRB approach to calculate their capital requirements for credit risk, on an aggregate basis for each group. The calculation of these ratios took into account the considerations set out in Section 2 and used the information in the confidential accounting and solvency returns as at June 2011:

The ratios shown are of two types:

- *Risk-Weighted Assets*/*Total Assets* (RWA/TA) ratio: as noted above, this is the ratio most widely used in the market to analyse the consistency of risk-weighted assets in the context of solvency regulations.

- Other ratios: these are also designed to measure the relationship between the risk taken and their respective exposures, all likewise measured by regulatory methods, but with the focus on credit risk. The first focuses on assets weighted by the risk of unexpected losses (i.e. the customary RWA), while the next two also include assets weighted by the risk of expected losses, this being done most completely and consistently in the last of these ratios.

As discussed in detail in Section 2, the RWA/TA ratio does not seem suitable for comparing banks, and less so for attempting to detect inconsistencies in the calculation of RWA, basically because it is not defined consistently and because its value is influenced by a mix of heterogeneous factors whose effects are difficult to separate from each other, since it is a ratio which encompasses all risks (credit, market, operational, etc.) and activities of the bank.

Therefore, to make comparisons in terms of the relative risk taken, it seems advisable to restrict the analysis to a domain as homogeneous as possible, at least that of one type of risk in particular. For this purpose, the last three ratios shown in Table 1 focus on a bank's total credit risk.[18] The RWA/EAD ratio reflects the average risk weight applied to the credit

18 Actually, this is still an excessive level of aggregation for an adequate analysis, and the results may be influenced by the relative weight of the various credit risk portfolios on banks' balance sheets, because the capital requirements (and asset weights) vary greatly from one bank to another.

RWA DENSITY RATIOS FOR SPANISH BANKS

TABLE 1

%

	Total RWA / Total Assets	Credit Risk: RWA / EAD	Credit Risk: (RWA + 12.5*EL) / EAD	Credit Risk: [RWA + 12.5* (EL + STA Prov.)] / Gross EAD
Standardised banks	60.3	57.1	57.1	98.4
IRB banks	53.7	49.1	63.1	77.3

SOURCE: Banco de España.
NOTE: The table shows various RWA density ratios for the Spanish banks applying the standardised approach and for those authorised to use the IRB approach, on an aggregate basis for each group and using confidential data as at June 2011.

risk, considering only the risk of unexpected losses. However, it seems reasonable to take into account not only this risk, but also the risk of expected losses, as in the last two ratios. The first of them incorporates the expected losses from the exposures treated under the IRB approach, but this is still incomplete and inconsistent, since only unexpected losses are included for exposures under the standardised approach (the rule does not require an explicit calculation of expected losses). The last ratio remedies this defect by using the assumption implicit in the standardised approach (expected losses are covered by provisions) and equating the expected losses under this approach to the provisions set aside. This ratio seems to be the most suitable one, within its limitations, for comparing banks which apply different approaches to calculate their regulatory capital requirements for credit risk.

Examination of the results obtained shows that most of the calculated ratios are, on average, higher in standardised banks than in IRB banks. The exception is the ratio which includes the IRB expected losses but not an approximation of EL for standardised banks. As noted above, this ratio is not totally suitable for comparing or aggregating banks or portfolios subject to different approaches because of the asymmetrical way in which it treats the standardised and IRB approaches. In the last of the ratios shown, it can be seen that, when a reasonable estimate of the EL for exposures under the standardised approach is included, the estimation of the "density of RWA" increases considerably for Spanish standardised banks, and clearly exceeds that for IRB banks.[19] This is consistent with the incentives established in Basel II.

Portfolio-level comparisons of the capital requirements of Spanish IRB banks are conducted periodically for their business in Spain in order to detect possible inconsistencies in the calculation of RWA. In this comparison, the dispersion of which is much lower than that in the international comparison, the differences can be attributed mostly to the different risk profiles due to the relative weight of the various portfolios and the quality of their component assets.[20]

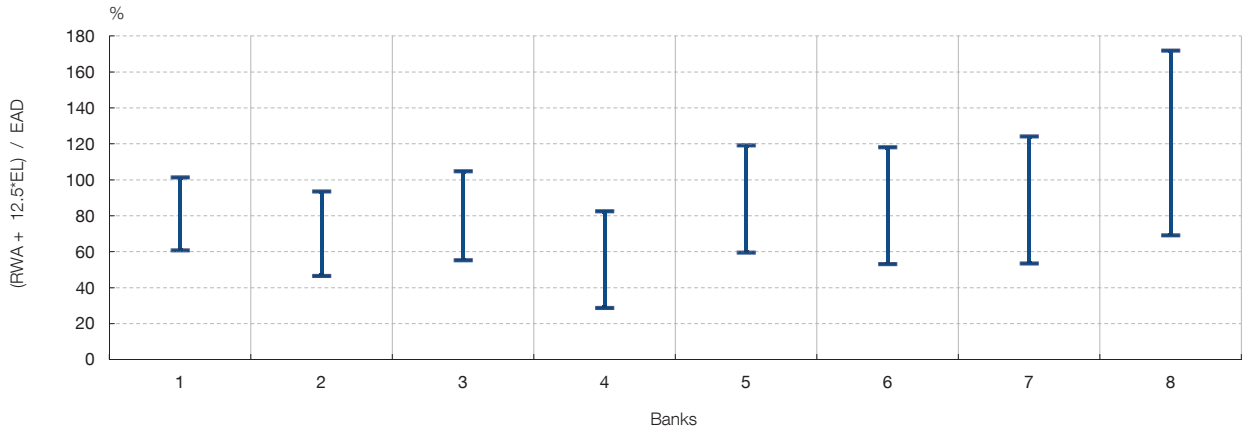
To illustrate to what point the portfolio structure alone can affect density ratios, in this case specifically the third ratio in Table 1 above, restricted to IRB portfolio data, the following simulation was carried out for each bank: the bank's capital charges for each portfolio were maintained, but the portfolio structure (with different weights in terms of EAD) of the other IRB banks was applied, thus changing the total value of the ratio[21]. The minimum and maximum capital charges for each bank resulting from this simulation were taken. The results are shown in Chart 3, where in many cases the maximum value reaches twice the minimum, illustrating to what extent the risk profile – only in relation to portfolio structure – can affect these ratios. And this is only one of the possible sources of differences mentioned in Section 2, which evidences the limitations of the RWA density comparisons between groups of heterogeneous banks seen in numerous studies.

19 The ratio also increases for IRB banks because a portion of the credit risk of these banks is treated under the standardised approach.

20 Other explanatory variables of possible differences may arise in other studies. These variables, which are mentioned in Section 2, are either isolated or without effect in the Spanish comparison. They refer to the type of bank (basically commercial), geographical area (only exposures in Spain), scope of analysis (only credit risk by the IRB approach) and accounting regulations and validation process (the same for all the banks analysed).

21 For instance, for bank 1 we substitute its portfolio mix for the portfolio mix of bank 2, but retaining the average requirements for each portfolio of bank 1 and we calculate a simulated ratio for bank 1. Repeating this simulation with the portfolio mix of the rest of the banks, we obtain a set of simulated ratios for bank 1, in addition to its true ratio.

IMPACT OF PORTFOLIO STRUCTURE ON IRB CREDIT RISK REQUIREMENTS CHART 3



SOURCE: Banco de España.
NOTE: The chart illustrates the effect of portfolio structure on density ratios, in particular on the ratio that considers RWA and also expected losses in the numerator and uses exposure at default in the denominator. Confidential June 2011 data of the IRB portfolios of eight Spanish IRB banks are used. The vertical bars represent the range of possible values of the ratio when the portfolio structures of all banks are applied to the risk weights and expected losses of every bank.

5 Supervisory validation of IRB approaches in Spain [22]

Irrespective of its complexity, the best regulation is useless if it is not applied correctly. Hence the importance of adequate supervision. In Basel II, the incorporation of greater sensitivity to risk and the possibility of applying a range of approaches depending on the level of development of risk management has certain implications. First, the supervisory task is more complex and its implementation and monitoring require greater consumption of supervisory resources. Second, this greater complexity may make comparisons between banks difficult. However, the solution should not be to return to arrangements that were less sensitive to risk, but rather to strive for more uniform implementation. The alternative of a less complex system does not guarantee greater comparability in terms of risks taken; it may be recalled that under Basel I exposures with very different levels of risk had the same capital requirements.

At the same time the advantages entailed by the introduction of Basel II should not be forgotten. The quantity and quality of the information available to analyse banks' exposures are much higher than before its introduction. As a result, analyses can be performed that, despite their limitations, are deeper and more revealing than would have been the case if Basel I were still in place and banks had developed internal models with little comparability and not subject to supervisory validation.

Under Basel II, banks may use their models to calculate capital requirements only if they comply with a number of minimum requirements and they have first been validated and authorised by the supervisory authority. Here, as in the case of other types of supervisory tasks, differences between jurisdictions remain. Although the scope of supervisory validation work tends to be the same for many supervisors and generally covers the revision of methodologies, documentation, data quality, the technological environment and quantitative and qualitative aspects, its focus and intensity differs. This section presents some of the main characteristics of the validation process in Spain.[23]

Supervisory validation of models in Spain commenced following the publication of Basel II in June 2004, and the first phase culminated in 2008 with the approval of the use of the

22 Although many of the comments in this section are applicable to the supervisory validation of models to measure different kinds of risks, the section refers to credit risk models in particular.

23 See Banco de España (2006) for details of the Basel II implementation process in Spain and of the validation of advanced approaches.

IRB approach by eight Spanish banking groups. Since then the IRB approach has been rolled out across portfolios, including those of their subsidiaries abroad in coordination with host supervisors. So-called mixed validation teams were created to carry out this validation, consisting of staff responsible for the regular inspections of each bank and staff specialised in risk measurement models. The approach applied is characterised by its global view of all the essential elements of an advanced risk management system, by its intensity, both in terms of the number of staff involved and its duration, and by being performed mainly on-site, at the banks' headquarters.

At the end of the validation process it should be possible to answer three key questions in the affirmative:

- The first is whether the bank's models contribute to daily risk management. To answer this question, among other aspects assessed are their internal uses, besides their regulatory ones, and the participation of senior management in the whole process.[24]

- The second is whether the models produce outputs that are adequate for their regulatory use. Here, not only the methodologies but also the quality of the information are reviewed.

- And finally, whether the bank has a structure of internal controls that guarantees the correct functioning of its models in the future, with special attention being given to the role played by internal validation units[25] and internal audit.

Although the questions are simple, they cannot be answered without a profound knowledge of the models and the data fed into them, and also of the bank's risk management and its technological environment. Two validation tests stand out here which consume a large amount of resources, but which have proven to be enormously useful for answering those three questions and have shown the importance of descending to a very detailed level to be able to understand banks' capital estimates and the great impact that apparently "minor" factors may have. These two tests are data checking and replication exercises.

Data checking

One of the key elements, and the largest source of incidents detected by far, is the quality of the databases. Given that scoring models (or rating systems) and risk parameters, whether internal or regulatory, are obtained by applying estimation procedures to data, the quality and reliability of such data need to be assessed. This is a necessary but not sufficient condition for obtaining models and estimates that are also adequate and reliable.

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24 It is worth highlighting that the main aim of developing internal models should be to improve risk management. For this reason, a basic requirement for the regulatory use of models is that they must be integrated in day-to-day risk management and be part of the bank's culture. This requirement is commonly known as the "IRB use test". However, integration does not mean that models outputs for management and regulatory purposes must be the same. As has been stated by the Basel Committee on Banking Supervision (2006), "measures used for internal processes may reasonably differ from IRB components in some instances… Where such differences exist, banks should demonstrate good reasons for use of parameters that do not match IRB components. The supervisory objectives of the use test could be met if banks demonstrate that the degree of consistency between the IRB components and the internal estimates is sufficiently high as to contribute to continuous quality pressure on the IRB components. In this context, consistency might be demonstrated by establishing clear linkages between the internal inputs and the IRB components, showing that any differences reflect legitimate risk management needs."

25 See Banco de España (2007) for the criteria that banks' internal validation units are expected to meet.

This data checking is generally carried out in two ways:

- Consistency and coherence with other databases of the bank. Thus, inter alia, the data are checked against the original systems and databases (loans, cards, etc.) and the accounting information. Also, the information controls and filters existing in the different sample creation processes are analysed, whether they are for building the model or for calibrating the risk parameters, as well as the information treatment protocols.[26] Special emphasis is placed on the replicability of the data.

- Review of physical files: not only enables the assessment of the reliability of the information (model variables, collateral data, recovery cash flows, etc.), but also the evaluation of the monitoring of the internal management procedures established, the relevance of models when granting credit facilities and the effectiveness of controls.

Replication exercises

Replication exercises generally consist in verifying the reality of the various outputs presented by the bank in its estimates, starting from internal databases and carrying out the operations and treatments reflected in the documentation. There are three different areas in which this type of task is performed:

- Construction of scoring models or rating systems.

- Calibration of risk parameters (PD, LGD, etc.).

- Regulatory outputs (capital requirements and expected loss amounts).

In Spain replications have focused on the latter two areas. As regards scoring models and rating systems we rely on the control procedures that their use should entail because, as they ought to be used to approve credit facilities, set prices and for other management practices, the bank itself is the main party interested in their proper functioning and in adapting them to changes, so as to ensure that they retain sufficient discriminatory power.[27] Moreover, if there is any problem in the ranking of exposures it will be detected in the replication of the risk parameter calibration.

Replications in the area of parameter calibration help to answer the question of whether the calculated outputs are appropriate, and seek:

- To detect gaps in the documentation.

- To provide a sufficient understanding of the estimation processes and hypotheses assumed, as well as to assess their importance and reasonableness.

- To check compliance with the minimum requirements established in the regulations.

Replications have also highlighted the importance of the details in the estimation processes, many of which are not incorporated into the documentation, so that it would

26 For example, the treatment of outliers and of zero or absent values.
27 In any case, partial replications are sometimes performed, in relation to the discriminatory power measures.

not be possible to be aware of their existence and assess them without carrying out these exercises. In our experience, taken together, they normally have an important impact on the final estimates.

As regards the calculation of the regulatory outputs (capital and expected losses), the aim of the replication tasks is to check that the bank's calculations are correct. The revision of the capital requirements that banks must regularly report to their supervisors has become a complex task, and certainly much more so than in the case of banks that apply the standardised approach. Replicating the capital calculations has the following objectives:

- To check that the bank is using for its capital calculations the approved set of regulatory parameters, and that the segmentation of the exposures and the capital curves applied are correct given the characteristics of each operation.

- To analyse the changes in capital requirements and expected loss amounts, trying to identify the causes of such changes: portfolio changes (migrations, new transactions...), parameter recalibrations or other relevant changes.

Finally, once the models have been approved it is necessary to design a structure for monitoring them so as to be able to check that the answers to the three basic questions of the validation process remain in the affirmative. Models are dynamic and must be adapted to changing reality and improved, as more and better information becomes available, which means they must be carefully maintained. This monitoring task has proven to be more costly in terms of supervisory resources than initially expected.

In Spain, model monitoring is based on the following elements:

1 Periodic information that banks must send or keep updated and available to the supervisor: the monitoring dossier, model-based internal validation reports and internal audit reports on use tests, databases and the technological environment. In addition, obviously, the sending of official solvency returns.

2 Continuous review of parameter recalibrations, including the related internal validation reports.

3 Cross-sectional analysis, both at the bank and portfolio level.

4 Prior notification of those changes that are considered relevant, in relation to models, essential parameters and the risk management system.

The importance that we already attributed, at the time of the first approvals, to internal control procedures and to the need for tight control over models and parameter estimates has been clearly confirmed by our experience over the last four years of severe crisis. This situation, and the policy changes and management decisions made by banks, have substantially modified the calibration samples used to estimate parameters, so increasing the importance of their detailed review. In addition, regulatory changes, especially those seeking to increase the quality of eligible capital, have, as discussed, increased the pressure on the denominator, and therefore on the parameter estimation processes. However, the monitoring scheme described has enabled supervisors to see the true nature of so-called "model optimisation", a very trendy topic along with RWA comparability. While

naive comparisons with similar banks seemed to be enough to endorse certain changes in models, it should be clearly stated that any change must be justified in terms of actual portfolio risk.

We believe that the Banco de España's supervisory validation process is appropriate, given the possibilities that use of the IRB approach allows for offering disparate results for portfolios that are similar from the point of view of their risk profile. Although it is difficult to know the extent to which the possible heterogeneity in this sense is affecting the comparability of RWA and the level playing field at the international level, we consider that it is necessary to homogenise further supervisory validation processes and the interpretation by the supervisory community of certain key aspects of estimation procedures. Steps are already being taken in this direction, such as the work at the European level to develop binding technical standards and the intention to reduce substantially the areas of national discretion. In addition, Basel and European working groups have been set up to analyse the consistency of RWA.

At the same time, it should be noted that when the scope of the models encompasses subsidiaries of Spanish banks in third countries, or subsidiaries in Spain of international banks, validation processes are performed in close collaboration with the relevant supervisors. This collaboration takes the form of joint reviews of models, with a division of labour that seeks to exploit the synergies arising from the specific knowledge of each supervisor and to avoid a duplication of work that may impose excessive costs on banks. The channels of communication and cooperation established with other supervisory authorities during approval processes serve, without a doubt, to increase the homogeneity of Basel II implementation, since both supervisors must feel comfortable with the model results at the end of the validation.

6 Summary and conclusions

In order to analyse the consistency of risk-weighted assets in the context of solvency regulations, comparisons in terms of the so-called RWA density – the ratio between a bank's total regulatory weighted assets and its total balance sheet – have proliferated. The revelation of notable differences in the value of this ratio across banks and countries has led some studies on the subject to conclude, one could say denounce, that RWA are not calculated consistently, and that there are significant, and unwarranted, differences in the calculation methodologies used by the banks and in the criteria of supervisors.

This article analyses the problems of this ratio, including its intrinsic inconsistency and the fact that very different business structures are considered. An international comparison is made of 16 European banks, which concludes that a significant part of the greater RWA density of banks is a consequence of the type of business. In particular, the greater the weight of credit risk in the balance sheet the greater the RWA density. In addition, the dispersion is reduced if we limit the scope of the comparison to the ratio of RWA to EAD in IRB portfolios.

Also, alternative RWA density ratios are proposed and the best way to relate a measure of risk to a measure of exposure is discussed. It is concluded that to be able to make a more appropriate comparison one must restrict the sphere to which it is applied. The article focuses on credit risk and shows that it is not sufficient to compare RWA, but that in the case of IRB banks, at least, expected losses must be included and, if the aim is to make a comparison with standardised banks, the different treatment of provisions should be considered. A comparison is presented for the Spanish case, showing that IRB banks have

a lower RWA density than standardised banks, which is consistent with the Basel II incentives. An example of the very important impact that the portfolio structure can have on RWA density ratios is also offered.

The possible sources of RWA differences are analysed, specifically differences in risk profiles, in the amount of progress made in applying advanced approaches and those permitted by the rules themselves, as well as differences of interpretation by banks and the heterogeneity of the supervisory validation processes. The conclusion drawn is that, unfortunately, it is not possible to determine from public information how much of the differences arises from each source, and that, although Pillar 3 could be improved, in particular in terms of comparability, it is doubtful whether it could ever offer sufficient detail to permit adequate cross-bank comparisons. As in other areas, there are certain aspects that can only be assessed by supervisors, not only because the information needs to be so detailed, but also because confidential information may need to be assessed.

Accordingly, the supervisory review process acquires particular importance, especially considering the quantitative importance that issues regarded as details may have, and therefore it is essential that the harmonisation of supervisory validation processes be increased. The main characteristics of the validation and monitoring carried out by the supervisor in Spain of banks with authorised internal models are presented. An adequate level of knowledge of the models of such banks is considered to have been achieved so that most of their differences can be explained in terms of different risk profiles.

Finally, two important aspects should be stressed. First, the Basel II rules are more complex than those of Basel I and consequently more supervisory resources are needed to monitor them. Second, this greater complexity can make comparison of the capital requirements across banks difficult, and their specific implementation in different countries may involve different criteria or different degrees of strictness in certain aspects. However, the solution must be to achieve greater uniformity in their implementation. The alternative of a less complex system would not guarantee greater comparability in terms of risks taken; it should be recalled that under Basel I exposures with very different levels of risk had the same capital requirements. Risk insensitive measures only lead to greater regulatory arbitrage and distortion of competition. In this respect, models continue to play an essential role, although, as always, their limitations should not be forgotten.

The advantages entailed by the introduction of Basel II should not be overlooked. Both the quantity and quality of the information available to analyse banks' risks have improved greatly since its introduction, with the resulting synergies, both for banks, in their risk management, and for supervisors, in their various monitoring tasks. Consequently, analyses can be performed which, despite their limitations, are more profound and revealing than those that would be possible if Basel I were still in force.

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AN OVERVIEW OF THE INDEPENDENT COMMISSION ON BANKING REFORMS – MOTIVATIONS, MEASURES AND LIKELY IMPACT

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AN OVERVIEW OF THE INDEPENDENT COMMISSION ON BANKING REFORMS – MOTIVATIONS, MEASURES AND LIKELY IMPACT

1 Introduction

1.1 THE BANKING SECTOR AND THE CRISIS

The economic crisis that has gripped the world is now about to enter its sixth year. The scale and depth of disruption to economic activity has been widespread and rapidly evolving.

Government support to the financial sector helped to avoid a systemic collapse but also contributed to a rapid deterioration in public finances, exacerbating a cyclical decline and drawing attention to underlying spendthrift policies, resulting in sovereign debt crises in some eurozone countries.

Against a backdrop of deteriorating economic activity, continued liquidity stress and regulatory changes, banks have found it increasingly difficult to fulfil financial intermediation roles. Deteriorating asset quality (both public and private) and regulatory pressures, have constrained banks' ability to provide crucial credit needed to support the economic recovery.

The challenge facing policymakers is therefore threefold:

i) How to ensure the banking sector does not contribute to the build-up of unsustainable economic bubbles, which could precipitate a future crisis?

ii) How to avoid the need for future taxpayer support to the banking sector?

iii) How to solve the above two challenges without inhibiting banks' vital financial intermediation role and prolonging the recovery from the current crisis?

The objective of this article is to provide: an overview of the background and motivations for the UK's Independent Commission on Banking (ICB); an explanation of the key recommendations; a high-level evaluation of its likely impact.

Section 2 of this article sets the ICB within the overall perspective of wider international and national developments. Section 3 explains the UK-specific motivations for the ICB reforms and provides an overview of the overall approach. Section 4 sets out in detail the specific proposals of the ICB measures with regard to financial stability. Section 5 provides an overall evaluation of the likely impact of the ICB measures considering both theoretical and practical implementation challenges. The final section provides a summary of the key messages.

2 International and regional regulatory developments

2.1 THE INTERNATIONAL RESPONSE

The international response to these challenges has been led by the G-20 through the Basel Committee on Banking Supervision (BCBS), the Financial Stability Board (FSB) and the International Monetary Fund (IMF).

Most of the international regulatory effort to date has focussed on trying to address the first two challenges i.e. putting in place regulation to avoid a future crisis. However, there is increasing recognition that more needs to be done to secure the recovery from the current crisis.

The key elements of the international response include:

— *Enhancing prudential regulation* via the Basel III agreement to increase banks' buffers of capital and liquidity. Such regulation is primarily designed to

counter-balance the build-up of unsustainable leveraging and to increase banks' ability to weather periods of heightened stress.

— *Addressing the underlying moral hazard problem* by introducing crisis management frameworks designed to facilitate the failure of any bank without the need for recourse to public funds and the spreading of systemic risk.

— *Improving micro and macro supervision* to better foresee emerging risks in the financial sector and to be able to take early measures to address them.

The response to date has primarily focussed on enhancing regulation and supervision of the traditional banking sector. However, there is also a need for regulators to take a wider view of risks emanating from non-traditional banking sources, such as the so-called shadow banking sector (loosely defined by the FSB as "credit intermediation involving entities and activities outside the regular banking system"[1]). As regulation of the banking sector increases so do incentives for arbitrage and it is therefore important that these risks are appropriately addressed.

This overall approach can broadly be described as an attempt to address market failures by adapting regulation to the existing system. The objective is to better identify and measure the build-up of risks, ensure that appropriate regulatory measures are taken to penalise risky behaviour and make those responsible for taking systemic risks bear the consequences of their actions.

So far there has been significant activity and many standards have now been defined at an international level. However, some crucial elements are still to be released (most notably the European Commission's Crisis Management framework) and some aspects still need further enhancement (such as a harmonisation of risk-weighted assets). A particular challenge for the banking sector is to correctly assess the implications of the various different changes in the regulatory environment and make clear decisions about future business strategy.

The process of transposing these international standards into regional and national legislation is now starting to take place, though progress has been disjointed with some countries advancing further than others. Some countries (or regions) – where the impact on the banking sector has been especially pronounced – have also introduced their own additional national initiatives. One of the key challenges is to ensure that implementation is even-paced and geographically consistent and that individual national initiatives do not lead to the creation of an unlevel-playing field, which could complicate the activity of cross-border banks and create potential incentives for arbitrage.

To date these additional national measures can de divided into two groups.

By far the most common, are regional/national initiatives that broadly follow the overall shape of the international regulatory approach. These measures typically extend certain elements of the existing framework or include specific additions to take account of national and regional circumstances.

1 http://www.financialstabilityboard.org/publications/r_110412a.pdf.

In the *United States,* the Dodd-Frank Reform will introduce 243 rules over the coming years and represents a major overhaul of the US financial sector. A number of the proposed changes follow the broad elements of the international reform but with US specific applications. Some elements also go much further, such as the Volcker Rule (see below).

Similarly in *Europe,* whilst the European Commission is aiming for a consistent implementation of Basel III, requests are being made to introduce EU-specific nuances. The European Commission is also developing its version of a crisis management framework. This framework is likely to closely follow the standards set out by the FSB but with some European-specific additions, such as a proposal for a voluntary ex-ante agreement for intra-group support or additional mechanisms for early intervention (such as the appointment of a special manager). The European Union is also considering the application of an EU-wide Financial Transactions Tax (FTT), which has not yet received the full support of the international community. An FTT would be aimed at disincentivising high-frequency transactions and recuperating some of the fiscal costs of bank rescues.

Individual European countries have also implemented their own initiatives. For example, in 2010, Germany, France and the UK publically committed to introducing direct bank taxes with flexibility to differ on specific design elements. In *Spain,* measures were introduced in 2011 to increase the capital requirements for Spanish banks. The law required that listed Spanish banks hold core capital of 8% of risk-weighted assets (RWAs), increasing to 10% for banks that have less than 20% of their capital listed and have a wholesale funding dependency of over 20%. Meanwhile in 2011, *Germany* introduced the Bank Restructuring Act, which amongst other things introduced two new voluntary restructuring proceedings and amendments to the existing German Banking Act, which significantly broaden the powers of BaFin to execute a rapid bridge bank resolution.

However, a small number of jurisdictions have opted to take an alternative approach. Instead of attempting to address market failures within the current system, these jurisdictions have instead looked to reform the structure of the system itself.

This is true for certain elements of the United States' Dodd-Frank reform, which contains the proposal to introduce the Volcker Rule. In simple terms the rule would prevent US-headquartered banks (and those non-US banks that trade with them) from engaging in proprietary trading and would therefore introduce a structural change in the operation of some US banks. It would aim to reduce speculative trading, which it regards as non-economically viable and volatility enhancing.

More recently, the European Commissioner for Internal Markets and Services Michel Barnier has announced the creation of a High-level Expert Group on reforming the structure of the European banking sector. The Expert Group been tasked to consider the need for further structural reform in Europe and will evaluate measures taken by the United States and the United Kingdom's Independent Commission on Banking.

2.2 FINANCIAL REGULATORY REFORM IN THE UK

The United Kingdom is the country that has perhaps gone furthest in undertaking its own national measures that are independent of the wider international agenda. To some extent this is unsurprising. The UK's financial sector was one of the worst affected by the crisis. Furthermore, together with the US, the UK has long been regarded as being something of a trendsetter in the financial regulation sphere.

Aside from the recommendations of the ICB, which will be discussed in more detail in the following sections, the UK has introduced a wide range of measures seeking to address the particularly pronounced banking crisis that it experienced.

These measures include:

— *Reform of the previous "tri-partite" regulatory system* (introduced in 1997), where supervision was divided between the Bank of England, Financial Services Authority (FSA) and HM Treasury. The reforms will see the dismantling of the FSA, the transfer of day-to-day macro-supervisory responsibilities to the Bank of England through the Financial Policy Committee, the creation of a Prudential Regulatory Authority responsible for the prudential regulation of banks, and the establishment of a Financial Conduct Authority to cover markets and consumer protection. In the case of taxpayer funds being required, increased powers will also be given to the Chancellor. The reform recognises failures in the UK financial regulatory approach prior to the crisis. The objective is to better integrate supervision, making clearer the lines of responsibility and increasing the focus on identifying the development of macro-fiscal risks.

— *The creation of a Special Resolution Regime* through the 2009 Banking Act. The Special Resolution Regime sets out specific statutory objectives for resolution of banks, as well as establishing a toolkit of powers for authorities to use in resolution. Tools include the ability to accelerate property transfers to private purchasers, the power to establish a bridge bank, the power to take an institution into temporary public ownership, as well as a modified bank insolvency procedure to close a failing bank and facilitate payment or transfer of insured depositor claims.

— *The introduction of a bank levy* on banks' total liabilities. The levy is designed to recuperate some of the fiscal costs of the crisis and to encourage banks to choose less risky forms of borrowing by excluding protected retail deposits and halving the tax rate for long-term debts. The first £20bn of taxable liabilities are excluded from the levy, in part to recognise the lower systemic risk posed by smaller financial institutions.

3 The ICB Proposal

However, the Independent Commission on Banking's recommendations are without doubt the clearest example of how the UK has adopted an approach that goes beyond and in a different direction to the current international consensus on financial regulation.

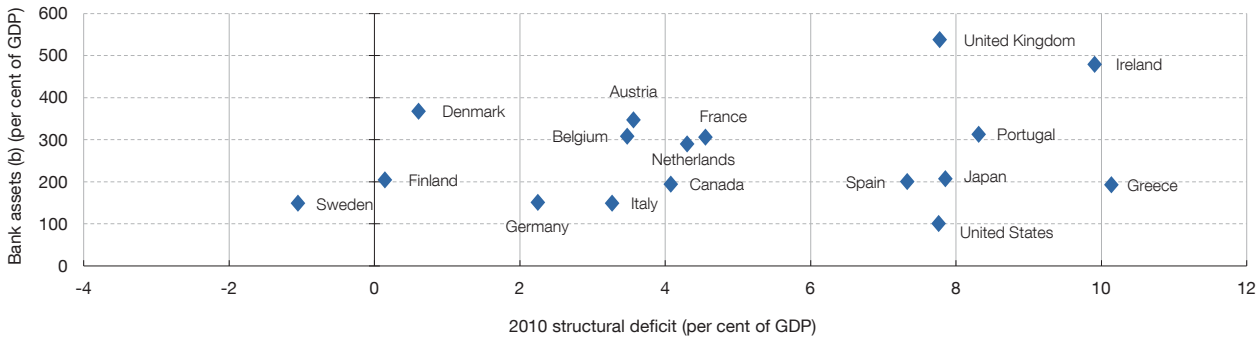
3.1 THE "BRITISH DILEMMA"

The rationale for establishing the ICB was to address what the Chancellor of the Exchequer, George Osborne, describes as the "British dilemma".

On the one hand it is vital for the UK that it does not lose its strength in financial services. The UK financial sector makes an important contribution to the UK economy's growth and job creation, as well as to fiscal revenue. In 2010, the financial sector accounted for approximately 10% of UK GDP and employed approximately 1 million people. Meanwhile some 11% of fiscal revenues in year 2009/10 were collected from the financial sector.[2]

2 http://www.thecityuk.com/assets/Reports/Economic-Trends-Series/Key-facts-about-UK-FS.pdf.

RELATIVE SIZE OF NATIONAL BANKING SECTORS AND FISCAL POSITION (a) CHART 1



SOURCES: *World Economic Outlook,* IMF, April 2012 and *Global Financial Stability Report,* IMF, September 2011.

a Page 28: http://cdn.hm-treasury.gov.uk/budget2012_complete.pdf.
b Total assets of commercial banks, including subsidiaries. For Austria, the data is from Austria National Bank. For Ireland, the data are from Central Bank of Ireland. For Portugal, the data are from Bank of Portugal.

On the other hand, as the crisis has shown, the financial sector is a major risk factor for the UK economy and as much as the financial sector has been a significant plus for public finances in normal economic times, it has the potential to be a significant negative in crisis.

A recent report by the National Audit Office[3] estimates that at its peak, total explicit Government support to the UK banking system amounted to £1.2 trillion including taxpayer support to specific banks and support to the financial sector as a whole. Whilst some of this support may yet be recouped through sale of Government stakes in publically-owned banks it is clear that this scale of public sector support is highly undesirable both in terms of its long-term impact on public finances and its moral hazard implications.

Furthermore, the financial crisis starkly called into question the availability and stability of essential banking services in the UK. This was most graphically illustrated by the queues that formed outside branches of Northern Rock in September 2007 and the problems that confronted customers in accessing bank accounts.

In straightforward terms the challenge that the Chancellor tasked the ICB to resolve was, *"how Britain can be home to one of the world's leading financial centres, without exposing British taxpayers to the massive costs of those banks failing"?*[4]

3.2 THE INDEPENDENT COMMISSION ON BANKING

In June 2010, the British Government established the Independent Commission on Banking headed by Sir John Vickers, a former Chief Economist of the Bank of England, to answer this question.[5]

The Government set the formal terms of reference[6] for the Commission as being to consider structural and non-structural measures to reform the banking sector and promote competition with a view to: reducing systemic risk; mitigating moral hazard; reducing the likelihood and impact of firm failure; and ensuring effective competition across sectors and sizes of firms.

3 The Comptroller and Auditor General's Report on Accounts to the House of Commons: The financial stability interventions, National Audit Office, July 2011. http://www.nao.org.uk/publications/1012/hmt_accounts_2010-2011.
4 Banking Reform Statement of the Chancellor of the Exchequer, 19 December 2011. http://www.hm-treasury.gov.uk/statement_chx_191211.htm aspx.
5 The other ICB panel members were: Claire Spottiswoode, Martin Taylor, Bill Winters and Martin Wolf.
6 http://bankingcommission.independent.gov.uk/terms-of-reference/.

In April 2011, the ICB published its first draft proposals.[7] Following several months of further consultation and consideration, the Commission published its final report in September 2011.[8]

The final report made two sets of recommendation: a first set aimed at addressing the financial stability issues identified earlier; and a second set aimed at boosting competition in the UK financial sector. The remainder of this article will focus on the recommendations related to financial stability and will not refer to those on competition, although this is not to underplay the importance of the latter.

The measures proposed by the ICB to improve financial stability are organised around two pillars:

1) *Increasing the ability of banks that provide critical retail services to absorb losses:* aimed at increasing the resilience of such banks in times of heightened stress.

2) *Separating critical retail banking activities from other banking operations – through the creation of a ring-fence:* aimed at insulating critical retail services from possible contagion, whilst permitting non-critical banking activities to fail without the need for public support.

These two pillars constitute two routes to addressing the same problem:

— The increase in loss-absorbing requirements essentially extends existing international agreements by increasing some minimum standards (e.g. capital, which other countries have also done) and by bringing forward certain measures (e.g. proposals to bail-in bondholders). In this regard, the measures are not qualitatively different from the approach being pursued elsewhere.

— By contrast, the proposal for a ring-fence is a radically different approach to the above. Instead of attempting to apply regulation to the existing system, the ring-fence is an attempt to reform the system itself. The nearest precedent is the Glass-Steagall Act established in 1933 following the Great Depression (see text box 1).

In December 2011, the UK Government announced its official support for the measures proposed by the ICB.[9] It published some initial reactions about how the Government would seek to implement the recommendations and identified specific areas that would need further analysis. The Government also committed to publishing a White Paper in spring 2012 which will set out how the Government would practically put the recommendations into legislation during the course of the current Parliament.

7 http://bankingcommission.s3.amazonaws.com/wp-content/uploads/2010/10/Interim-Report-publication-JV-opening-remarks-check-against-delivery.pdf.

8 http://bankingcommission.s3.amazonaws.com/wp-content/uploads/2010/07/ICB-Final-Report.pdf.

9 http://cdn.hm-treasury.gov.uk/govt_response_to_icb_191211.pdf.

Ever since the ICB first hinted at recommending some form of separation between banks' retail and investment banking activities, commentators have been quick to draw comparisons with the Glass-Steagall Act that was introduced in the United States in 1933 and finally repealed in 1999.

The Glass-Steagall Act refers to the 1933 Banking Act which was sponsored by US Senator Carter Glass and Congressman Henry B. Steagall. In particular, it is commonly used to describe the specific provisions that introduced a separation between commercial and investment banking in the United States:

— *A prohibition on national banks from purchasing, selling, underwriting or distributing securities.* Except when: acting on behalf of customers; dealing with US Government securities; or purchasing permitted "investment securities". (Section 16)

— *A prohibition on any person or company taking deposits if it was involved in issuing, underwriting, selling, or distributing securities.* (Section 21)

— *A prohibition on any member of the Federal Reserve System from being affiliated or sharing common directors/officers with a company engaged primarily in issuance, flotation, underwriting, sale, or distribution of securities.* (Sections 20 and 32)

The Glass-Steagall Act is comparable to the ICB recommendations insofar as the ICB recommends that banks' retail and investment operations be separated from one another. However, unlike the Glass-Steagall Act, the ICB only requires operational separation whereas Glass-Steagall imposed institutional separation. Under the ICB recommendations the same banking group can still own both retail and investment operating units. Furthermore banking groups will be able to move capital between retail and investment units provided both are meeting minimum capital requirements and to share common services, such as branding and technology.

4 Design of the ICB Recommendations

This section explains in more detail the main elements of the recommendations made by the ICB on financial stability.

4.1 RETAIL RING-FENCE

In its simplest form, the ring-fence consists in the separation of retail activity from wholesale activity. Retail activity includes those functions that are typically regarded as being vital to the economy, such as deposit-taking, the payments system and the provision of credit to families and firms.

The ICB argues that the creation of a ring-fence for retail activity has three main objectives.

Firstly, to increase the ease by which banks in difficulty can be resolved, minimising the impact on the financial sector without the need for recourse to taxpayers.

Secondly, to isolate vital banking services for households and SMEs from other financial sector activities that have a greater probability of entering into difficulties. By establishing limits on the activities that can exist on the balance sheet of ring-fenced banks, the ring-fence creates a form of firewall against possible contagion, reducing financial interconnections and therefore systemic risk.

Finally, to reduce the incentives for banks to take excessive risks, making it easier to apply resolution tools, placing the burden of loss absorption on creditors ("bail-in") and avoiding the need to intervene to protect vital banking services, which are already isolated and protected.

The ring-fencing requirements will apply to any UK bank or building society, including UK subsidiaries of wider banking groups headquartered in the UK or elsewhere. The requirements will not apply directly to foreign subsidiaries of UK ring-fenced banks nor to UK branches of banking groups from outside the UK.

The ICB make a series of high-level recommendations regarding the separation of activities, along two axes: the location and the height of the ring-fence.

Location of the ring-fence

The ICB make a distinction between the various types of services that can and cannot be provided by ring-fenced and non-ring-fenced banks. Activities that do not fall into the following categories are permitted activities, which can be provided by both ring-fenced and non-ring-fenced banks.

The UK Government has indicated that it favours a flexible approach to setting the ring-fence with only a limited amount of prescription regarding what ring-fenced banks can and cannot do.

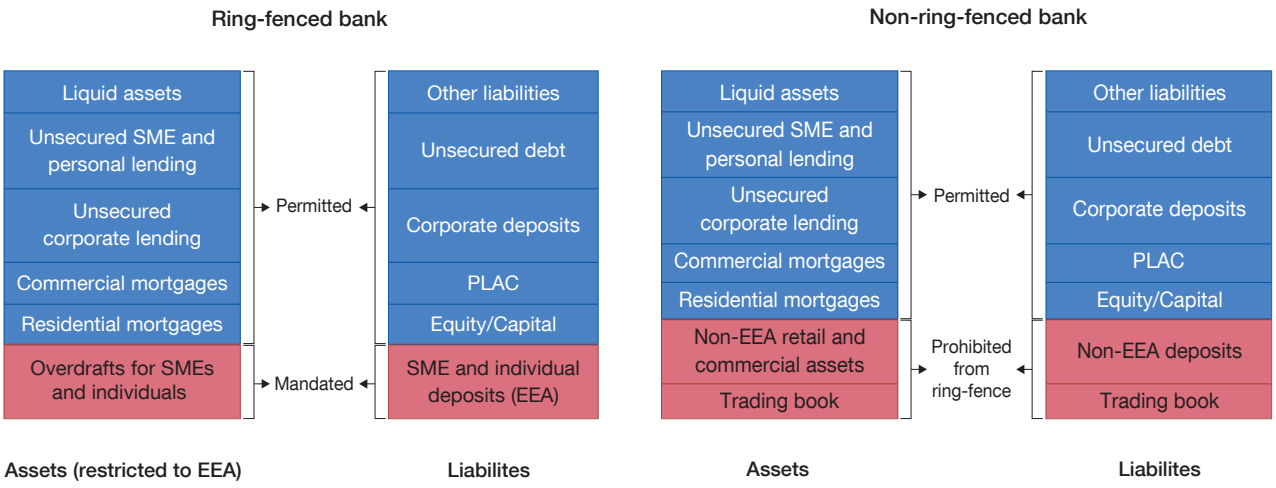
— *Mandated activities* can only be undertaken within the ring-fence. The ICB defines mandated activities as services for which even a temporary interruption would impose a significant economic cost and for which it is typically difficult for customers to plan ahead. At a minimum this would include deposit-taking from individuals and SMEs and providing overdrafts to individuals and SMEs. The UK Government will evaluate whether provision of credit to households and/or SMEs should also be mandated within the ring-fence. It will also provide guidance on the definition of SMEs to be included in the ring-fence and how to treat private banking services.

— *Prohibited activities* cannot be undertaken within the ring-fence. Prohibited activities include services, which: make it significantly more difficult or costly to resolve the ring-fenced bank; directly increase the exposure of the ring-fenced bank to global financial markets; are not integral to the provision of payments services or the direct intermediation function; in any other way threaten the objectives of the ring-fenced bank. The ICB recommends that prohibited activities include: services to financial institutions or to non-EEA customers; services relating to secondary market activities; services that require firms to hold regulatory capital against market risk and derivatives, or other contracts which require capital to be held against counterparty risk.

— *Ancillary activities* can be undertaken if necessary for the efficient provision of mandated and permitted services e.g. for the purposes of risk management, liquidity management, or funding of non-prohibited services. The ICB also recommends that limits be placed on the proportion of wholesale funding permitted for a ring-fenced bank. The UK Government agrees that ancillary activities may be necessary for the efficient provision of services, but it is concerned that these activities should not dilute the ring-fence. It has also committed to consider how to prevent ring-fenced banks from becoming over-reliant on wholesale funding.

— The UK Government will evaluate the characteristics of financial institutions that may be permitted as counter-parties to ring-fence banks. It will also analyse the characteristics of prohibited products by reference to their function and investigate the potential scope for including simple derivatives and investment products within the ring-fence – for example, products which provide insurance against interest or exchange rate risk. Finally, the Government will look at ways to define the geographic scope of permitted

WHAT THE BALANCE SHEET OF A RING-FENCED AND NON-RING-FENCED BANK MIGHT LOOK LIKE (a) CHART 2



a Page 22: http://cdn.hm-treasury.gov.uk/govt_response_to_icb_191211.pdf.

services. The guiding principle will be that services should be assumed to be prohibited, unless it can be shown that they do not jeopardise the objectives of the ring-fence.

Height of the ring-fence

The height of the ring-fence refers to the degree of separation that the ring-fenced bank should have from other entities within the same corporate group.

During its deliberations the ICB gave serious consideration to recommending full separation of retail entities from wholesale entities (along the line of the Glass-Steagall Act). In the end, the ICB concluded that full separation would involve a number of additional costs with relatively limited additional benefits compared to an effectively imposed ring-fence. In particular, the ICB noted that full separation could result in the possible loss of diversification benefits as well as various benefits from economies of scale, such as shared infrastructure, branding and information. Furthermore, in the case of an entity entering into difficulties, a ring-fence approach would permit the sharing of *surplus* capital and liquidity between entities in the same group. Finally, the ICB also noted potential legal impediments to full separation from European law.

As a result of these deliberations, the ICB plumped for the ring-fence approach, advocating a high degree of separation in legal, operational and economic terms between the ring-fenced entity and the rest of the group.

— In terms of *legal and operational separation,* the ICB emphasises that authorities should be able to isolate a ring-fenced bank from the rest of the group in a matter of days. To this end they recommend that ring-fenced banks be separate legal entities and that ring-fenced banks only be able to own financial institutions conducting ring-fence activities. Regarding operational separation, the ICB emphasises the importance of ensuring that the ring-fenced bank be able to have an uninterrupted supply of essential operational services even when other parts of the group face insolvency. The Government recommends that firms consider use of service level agreements for provision of essential services and provide services via operational subsidiaries on an arm's length basis.

— In terms of *economic separation,* the ICB recommends *inter alia* that ring-fenced banks be subject to regulatory requirements on a solo basis and that intra-group transactions be conducted on a third party basis. In order to ensure effective independence in decision making, the board of the ring-fenced bank should be made up of mainly independent non-executives tasked with maintaining the integrity of the ring-fence and that no more than one member of the board of the ring-fenced bank may also sit on the board of the parent or another member of the group.

The UK Government has signalled its agreement with the broad thrust of the recommendations and will consider in detail how to practically implement them. In particular, it will review the case for *de minimis* exemptions. This could permit certain entities, which already have a high degree of resolvability and pose minimal systemic risk, to be exempt from the ring-fencing requirements. The Government has indicated that this may be the case for small entities. It will analyse the case for *de minimis* exemptions for entities that undertake a small amount of either mandated or prohibited services and for which the implementation of a ring-fence would pose a significant additional cost. However, the Government is cautious of taking any measure that could water down the ring-fence.

4.2 INCREASED LOSS ABSORBING CAPACITY

The second main pillar of the ICB recommendations is the proposal to significantly increase the capacity of entities to absorb losses. The ICB propose a range of measures to achieve this.

Capital requirements

The ICB recommends that ring-fenced banks should be subject to capital requirements that are greater than the international standards established by Basel III. They propose an additional layer of Tier-1 capital, referred to as the "ring-fence buffer". The buffer will not apply to non-ring-fenced banks, to avoid harming the international competitiveness of the UK's investment banks.

— For large ring-fenced banks with a ratio of risk-weighted assets to UK GDP in excess of 3%, they propose a ring-fence buffer of 3% of RWAs. Adding the buffer to Basel III criteria, means that large ring-fenced banks in the UK should have a total minimum common equity of 10% of RWAs.

— For smaller retail ring-fence banks (ratio of RWAs to GDP of between 1% and 3%), the ICB propose a ring-fence buffer of between 0% and 3%. This means that small ring-fenced banks could have a total minimum common equity of between 7% and 10% of RWAs.

These additional capital requirements are aimed at increasing ring-fenced banks' ability to weather periods of heightened stress and reduce their cost of resolution, therefore providing greater insulation to vital banking functions. However, the ICB also note that increased capital requirements could increase regulatory arbitrage incentives and potentially encourage deleveraging, which will be discussed in more detail later.

Some industry participants have expressed concern that the ICB's recommendations would interfere with the operation of the various equity buffers. These buffers (Basel II capital conversation buffer, counter-cyclical capital buffer, G-SIB surcharge) are intended to run in addition to the hard regulatory minimum of 4.5% established by the Basel Committee. They would provide a cushion that can be built up in normal times but also be

temporarily run down in times of stress. Some industry participants expressed concern that the ICB criteria would introduce a higher hard regulatory minimum and therefore limit the operation of the buffers. The ICB has clarified that the ring-fence *buffer* is exactly that and should not be seen as raising the hard regulatory minimum.

Leverage ratio

In line with Basel III, the ICB also favours the introduction of a leverage ratio. The leverage ratio is designed to avoid some of the difficulties associated with risk-weighting of assets, which can suffer from inaccuracies. Basel III established a binding minimum ratio of Tier 1 capital to total exposures of 3% to be in place by 2018.

The ICB proposes that:

— All UK-headquartered banks should maintain a Tier 1 leverage ratio of a least 3%. This should be met on a solo basis by ring-fenced banks.

— All ring-fenced banks with a ratio of RWAs-to-UK GDP of between 1% and 3% should have a minimum leverage ratio that increases on a sliding scale to a maximum of 4.06%.

Bail-in

In accordance with wider international developments, the ICB proposes that UK regulatory authorities be given statutory bail-in powers, allowing them to impose losses on the creditors of a failing bank and reducing taxpayer exposure.

The ICB recommends that:

— Authorities are given a "primary" bail-in power allowing them to bail-in long-term unsecured debt, either by write down or conversion into equity. The power would be primary insofar as the ICB view this type of debt as being the most practicable for resolution authorities to impose losses.

— Authorities are given a "secondary" bail-in power allowing them to bail-in all other unsecured liabilities if the exercise of the primary bail-in power does not prove sufficient. The ICB propose that this power be secondary, recognising that imposing losses on certain types of short-term funding and derivatives could increase disruption in financial markets.

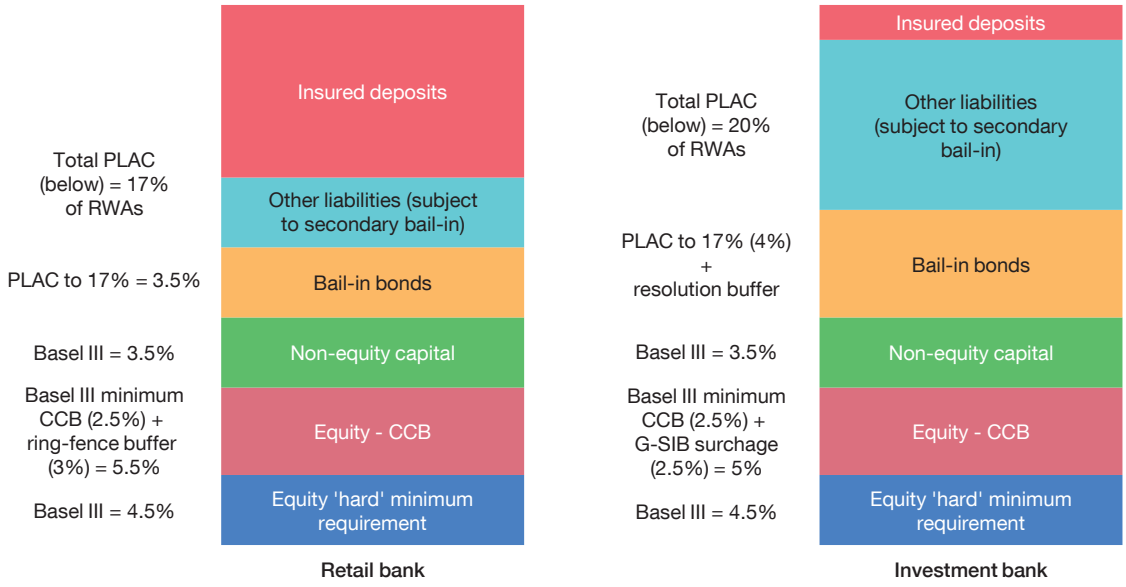
— The existing creditor hierarchy should be maintained as far as possible and bail-in should be applied retroactively to existing debt already issued.

— Bail-in powers should extend to non-deposit taking entities within banking groups.

Depositor preference

The ICB recommends that all insured deposits (regardless of whether they are in the ring-fenced or non-ring-fenced bank) should rank ahead of other creditors in resolution. The ICB argue that this approach would reflect the limited capacity and ability of insured depositors to exert market discipline on banks and would increase the incentives of other unsecured creditors (who would normally rank *pari passu* with insured depositors in liquidation) to be more effective in exerting discipline. Such an approach would also reduce the potential losses to the Financial Services Compensation Scheme (FSCS) and further limit the possibility of recourse to the taxpayer in the case of a systemic event in which banks were temporarily unable to fund the scheme.

LOSS ABSORBENCY CAPACITY IN RESOLUTION FOR A RING-FENCED AND NON-RING-FENCED BANK (a) CHART 3



a Page 120: http://bankingcommission.s3.amazonaws.com/wp-content/uploads/2010/07/ICB-Final-Report.pdf.

Primary loss-absorbing capacity

The ICB's proposal to introduce a bail-in regime that prioritises certain liabilities over others has the potential to increase incentives for banks to concentrate on issuing liabilities that would not be affected by bail-in (e.g. secured debt or protected deposits or short-term funding). These liabilities would presumably be relatively cheaper to issue as investors would not be affected by a possible bail-in.

In anticipation of this problem, and to avoid a situation in which the bail-in tool would be blunted by a lack of bail-inable liabilities, the ICB recommends that banks be required to hold a minimum amount of "primary loss absorbing capacity" (PLAC). This is defined as either regulatory capital or long-term unsecured debt that is capable of being subject to the primary bail-in power. The ICB suggests that for the biggest G-SIBs and large ring-fenced banks, the minimum level of PLAC should be set at 17% of RWAs. According to the ICB's analysis, this would constitute a level of loss-absorbency capable of covering losses suffered by banks in the majority of previous crises. In particular, the ICB recommends that:

— UK-headquartered banks that are subject to a 2.5% G-SIB surcharge,[10] and all ring-fenced banks with a ratio of RWAs to UK GDP of 3% or more, should be required to have PLAC of at least 17% of RWAs

— UK-headquartered banks that qualify as G-SIBs but have a G-SIB surcharge of below 2.5%, and all ring-fenced banks with a ratio of RWAs to UK GDP of between 1% and 3%, should be required to have PLAC on a sliding scale of between 10.5% and 17% of RWAs.

Furthermore, the ICB recommends that these requirements apply to UK-headquartered G-SIBs at the consolidated group level and to UK-domiciled banks on a solo basis.

10 In November 2011, the Basel Committee on Banking Supervision (BCBS) approved measures to apply a common equity surcharge on certain global systemically important banks ("G-SIBs"). The surcharge ranges from an additional 1% to 3.5% to be applied on top of the Basel III 7% requirement in proportion to the degree of systemic risk posed by banks, determined according to an indicator-based methodology.

Imposing PLAC against group wide assets would aim to reduce the impact of the failure of non-UK operations on UK financial stability and taxpayers.

Resolution buffer

In addition to the PLAC requirements, the ICB also propose that supervisors of UK-headquartered G-SIBs and ring-fenced banks should have the discretion to impose an additional loss absorbing capacity of up to 3% of RWAs. Supervisors could apply this "resolution buffer" if they have concerns about the resolvability of a particular institution and would be free to choose whether the buffer should take the form of capital or long-term unsecured debt.

The UK Government's initial response

The UK Government has expressed its support for the loss absorbency proposals as a whole. In certain areas the Government makes specific observations or commitments to further work:

— *On the ring-fence buffer,* the Government believes that capital requirements should not be regarded as additional to any G-SIB surcharge (only the higher of the ring-fence buffer or the surcharge should apply) and that internationally-agreed G-SIB/L-SIB criteria could be used to calibrate the appropriate size of the buffer.

— *On the leverage ratio,* the Government will analyse whether different minimum leverage ratios are needed for banks with different business models and whether a buffer approach should be taken towards the application of the leverage ratio.

— *On bail-in,* the Government will undertake further analysis to determine which liabilities should fall under the primary and secondary bail-in power. It will review potential perverse incentives of providing a more favourable treatment to short-term funding and will analyse whether bail-in should apply retroactivity.

— *On depositor preference,* the Government will analyse related issues including the potential for arbitrage, the possibility of flights of certain types of creditors and potential cost and supply implications for non-protected instruments. It will also analyse different scopes of depositor preference, which may be wider or narrower than the ICB's proposal for an insured depositor preference.

— *On primary loss absorbing capacity,* the Government will analyse whether 17% is the appropriate number for the largest institutions. The Government agrees that PLAC should be applied on UK-headquartered G-SIBs' global operations, but will consider exemptions for non-UK operations that can be shown not to pose a risk to UK financial stability. The Government also believes that PLAC requirements should function on a buffer basis rather than as a hard regulatory minimum.

5 Evaluation

The following section looks at the likely impact of the ICB recommendations in addressing the three challenges defined by this article at the beginning of this paper:

i) How to ensure the banking sector does not contribute to the build-up of unsustainable economic bubbles, which could precipitate a future crisis?

ii) How to avoid the need for future taxpayer support to the banking sector?

iii) How to solve the above two challenges without inhibiting banks' vital financial intermediation role and prolonging the recovery from the current crisis?

The section is divided into two parts: a first part, which highlights some of the challenges facing the UK Government and the banking sector in implementing the ICB recommendations; a second part, which draws out some high-level conclusions about the extent to which the recommendations will deliver on their objectives.

The ICB reforms have already generated a significant amount of discussion. This article seeks to draw the reader's attention to some of the key issues that have been raised.

5.1 PRACTICAL IMPLEMENTATION CHALLENGES

In evidence sessions conducted by the UK Parliament, senior banking figures acknowledged that the reforms proposed by the ICB were essentially a "done deal".[11] However, they also emphasised that the implementation of the recommendations was likely to prove complex and have a significant bearing on the cost and effectiveness of the ICB's measures.[12]

This section identifies some of the challenges that the UK Government will need to get right over the coming years as it attempts to put the ICB recommendations into legislation.

Location of the ring-fence

The challenge for the UK Government is to decide which activities should be mandated, permitted or prohibited, so as to ensure both ring-fenced and non-ring-fenced entities are economically efficient and viable. The UK Government will need to strike the right balance to ensure that entities on both sides of the fence have:

— *Balance sheets that make sense.* Assets and liabilities need to be able to be balanced effectively. For example, if mandated liabilities are insufficient to match mandated assets, then the ring-fenced bank will either need to reduce its mandated assets (which are presumably useful activities), or fund itself through other non-mandated liabilities, which could increase its exposure to wholesale market volatility.

— *The ability to provide a range of cost efficient services to customers.* SMEs may find themselves in a situation where they need to visit a ring-fenced bank for vital basic banking services (i.e. to deposit money) and a non-ring-fenced bank to access important hedging facilities such as exchange rate and interest rate hedges. There is therefore a potential opportunity cost between permitting the retail-ring fence bank to engage in certain activities, such as client hedging, which would involve exposure to small amounts of market volatility and being able to provide a cost-efficient, low hassle range of services to the client.

— *A sufficient degree of diversification.* The range of activities that ring-fenced banks are allowed to engage in should not be so limited that they are exposed to concentration risks from certain sectors.

The UK Government has indicated that it intends to take a flexible approach, defining only a small number of mandated and prohibited services for ring-fenced banks. This would seem to be the most sensible approach for ensuring that the entities are economically viable.

11 Pages 20 & 24: http://www.parliament.uk/documents/lords-committees/economic-affairs/reporticb/ResponselCBReport.pdf.

12 See for example pages 20 & 26, Ibid.

Height of the ring-fence

Another related challenge for the UK Government is to determine how high to place the ring-fence. The difficulty is to achieve the right balance between allowing some degree of intra-group connection so groups are able to benefit from economies of scale and the possibility of sharing excess capital and liquidity in times of stress, whilst ensuring that the ring-fenced bank is sufficiently separable and resolvable. In this regard one of the key practical issues that still needs clarification is *what to do with shared infrastructure* such as branches and ATM machines.

A more intangible problem is how to bring about *changes in culture within the governance of the ring-fenced bank.* One of the key conclusions from the crisis is the need to introduce a more prudent management culture, focussed on the identification and careful control of risk. The ICB recommends that as a starting point the board of the ring-fenced bank should have a majority of independent non-executives and that a maximum of one board member from the parent or another entity within group may be allowed to sit on the board of the ring-fenced bank.

On a practical basis, this could present several challenges:

— *Ensuring that non-executive directors are sufficiently well-qualified.* If non-executives are to impose a culture of prudence in the ring-fenced bank they need to be able to effectively carry out their challenge function. This means that they need to have a deep understanding of how the bank works and confidence to challenge its management. There is also a question as to whether there are currently a sufficient number of non-executives well placed to carry out the function.

— *Ensuring that there is congruence between the ring-fenced bank and the rest of the group.* The proposal to limit participation of other group members on the board of the ring-fenced bank is designed to reduce influences from the group, which may be more focussed on maximising returns. However, limiting group involvement also comes with potential costs. It may make the integration of shared group services and policies more complicated. Furthermore, if majority shareholders see that they will be deprived of their ability to control investee banks, this could serve as a barrier to entry for new investors in the UK banking sector.

Loss-Absorbency

Although a number of the ICB's loss absorbency proposals broadly follow the standards set out at an international level, there are some specific elements that are likely to complicate practical implementation:

— *Proposal for a minimum-level of Primary Loss Absorbing Capacity* – unlike the FSB, the ICB proposes that banks should hold a minimum level of capital and primary bail-inable debt. The objective is to avoid incentives for banks to issue secured debt or other forms of debt that would not be affected by bail-in. However, for banks which are primarily deposit-funded, the proposal could have the perverse effect of requiring such banks to increase their financing from wholesale markets so as to meet the minimum requirements.

— *Depositor preference.* The proposal to introduce a depositor preference also raises implementation challenges. On the one hand depositor preference may provide increased reassurance to depositors, reducing the probability of a

sudden loss of liquidity resulting from depositor runs in resolution. However, it also increases monitoring incentives for senior debt classes and this in turn may lead investors in senior debt to look to reduce their potential exposures in a resolution by moving into deposits or secured debt not affected by bail-in. This could have the perverse effect of increasing depositors' potential exposure to losses in resolution, as there could be less of a cushion of senior debt to absorb losses ahead of them. A depositor preference could also reduce depositors' incentives to make prudent choices between financial institutions of varying solvency.

International consistency

As was highlighted at the start of this article, the ring-fence proposal is fundamentally different in approach to international regulatory reform to date. However, ring-fenced and non-ring-fenced entities will continue to operate in a financial sector which is intrinsically international and will continue to be subject to international regulatory agreements. This has the potential to present significant implementation challenges in a number of areas:

— *Bail-in:* Although the proposal for bail-in has been endorsed at an international level by the FSB, many of the technical details have not been finalised (for example on retroactivity, scope of depositor preference). The ICB's proposals are more detailed and include elements such as a minimum quantity of bail-inable debt and retrospective application, which go beyond international standards. This could raise potential funding costs for UK banks, in particular if the UK bail-in regime is either more advanced, more complicated or seen to expose investors to higher risks than the rest of the international sector.

— *Crisis Management:* UK systemically important financial institutions (SIFIs) will be subject to the same crisis management requirements established by the FSB as other global SIFIs. This means that in October 2012 the UK authorities will need to conduct assessments of the resolvability of UK SIFIs and may be required to make recommendations on structural changes to improve their resolvability. This could present potential difficulties given that such changes would also need to be consistent with the direction of the ICB reform.

5.2 WILL IT WORK?

The ICB recommendations are a mix of two different solutions to the same problem.

The *proposals for increased loss-absorbency* broadly follow the international approach to regulation taken to date. That approach is to identify risk, measure it and take action to counter it, so that banks better take into account and address the risks of their activities. It is essentially a market-based solution, focussed on the identification of negative externalities and the creation of tailored responses, which maintain the overall efficiency of the system and ensure consistency across the financial sector (both banking and non-banking sectors). In this sense, the ICB recommendations regarding loss-absorbency are *quantitatively* but not substantially qualitatively different from the international approach.

Therefore when evaluating the effectiveness of the loss-absorbency elements of the ICB reforms, the issue that needs to be considered is whether the ICB chose the right level. The key question is whether the benefits associated with an increased capacity to withstand future crises are commensurate to the incremental cost imposed on banks' funding from having to hold additional capital, more longer-term funding and bail-inable debt and the possible loss of competitiveness that this may entail.

The *proposal to establish a ring-fence* is fundamentally a different approach. It is a structural reform, which instead of adapting regulation to emerging risks, attempts to change the system itself to avoid the emergence of risks. It is essentially an interventionist solution based on prohibition rather than the creation of incentives to avoid certain activities. By significantly inhibiting or totally prohibiting certain risky activities in certain organisations, it is possible that such an approach is more effective in limiting any residual risk posed by certain activities. However, it also interferes with the efficiency of the existing system and may disrupt the provision of associated socially useful activities. It is therefore *qualitatively* different from the international approach to regulation to date.

Therefore when evaluating the effectiveness of the ICB's ring-fencing proposals, the relevant question is not whether the ICB chose the right level, but whether the approach itself makes a substantial improvement to addressing the underlying problems given the implementation and operating costs that will be incurred in implementing the reform.

The UK Government believes that the reforms will deliver significant benefits to the UK economy. The Government's analysis assumes that the ICB reforms could reduce the probability of a future crisis by 10% (by moderating financial sector risk and increasing bank resilience) and reduce the GDP cost of a crisis by 25% (by protecting vital banking services and enhancing bank resolution powers). This would yield an incremental economic benefit of £9.5bn[13] p.a., which is roughly five to ten times higher than their estimate of the GDP costs of the ICB's recommendations (see below).

This section now briefly evaluates the likely benefits offered by the two pillars of the ICB reform. It considers the extent to which each approach contributes to addressing the three questions identified at the start of the article:

How to ensure the banking sector does not contribute to the build-up of unsustainable economic bubbles, which could precipitate a future crisis?

Loss-absorbency measures: Additional capital and leverage ratios proposed by the ICB will help to limit future crises. By requiring ring-fenced banks to hold more capital against their activity, the ICB recommendations act as a counterweight against unsustainable lending. Furthermore, the bail-in proposals increase incentives for banks' creditors (especially in the non-ring-fenced banks) to be more prudent in their approach to management of risk as they will no longer be excluded from the costs of failure.

The point, however, is whether the ICB have balanced the marginal benefit of requiring additional capital to the marginal costs of holding more capital. In particular, it is not clear that retail activity should be penalised through higher capital requirements than non-retail activity. Retail activity, like all banking activity, carries a degree of risk. However, this risk is typically low reflecting the straightforward and transparent nature of the activity and slow deterioration rates of retail bank's balance sheets even in deep and sudden financial crises such as in 2008.

Ring-fence measures: The main way in which ring-fence proposals contribute to reducing the probability of a future crisis is by making clearer the separation between ring-fenced and non-ring-fenced banks and therefore further reinforcing the removal of the Government guarantee for those banks outside of the ring-fence. However, on the

13 Chapter 5: http://cdn.hm-treasury.gov.uk/govt_response_to_icb_191211.pdf.

flipside, the recommendations also increase moral hazard within the ring-fenced bank. The concentration of economically critical functions within the ring-fence makes it unthinkable that a ring-fenced bank would be allowed to fail.

Furthermore, whilst ring-fenced banks are limited in some of the risky activities that they can undertake; the ring-fencing solution does little to address the potential for non-ring-fenced banks to continue taking significant risks. In order to maintain the competitiveness of UK wholesale banking the ICB proposals permit non-ring-fenced banks to have lower levels of capital than ring-fenced banks. It is true the creditors of such institutions will be vulnerable to pay the price for excessive risks, but this is a result of the loss-absorbency measures and not the structural reform itself.

How to avoid the need for future taxpayer support to the banking sector?

Loss-absorbency measures: Loss-absorbency measures proposed by the ICB will reduce the need for taxpayer support to the banking sector. Increased levels of capital and the possibility to bail-in creditors create additional layers, protecting taxpayers from having to take a share in the losses. The size of these additional layers will depend on the scope of the depositor preference chosen by the Government. A wider depositor preference would reduce the liabilities capable of being bailed-in and may create arbitrage incentives for senior debt-holders to move to protected classes.

Ring-fence measures: The ICB argue that the ring-fence reduces future taxpayer support by significantly simplifying the disentanglement of vital economic functions from non-vital functions and therefore underlying the ease with which a non-ring-fenced bank would be allowed to fall without taxpayer support.

The potential flaw in the ICB's analysis is to assume that the ring-fenced bank can be fully isolated from the potential failure of a non-ring-fenced bank. Although the ring-fence creates a barrier between ring-fenced and non-ring-fenced banks, both entities share a common link to the real economy. The failure of a non-ring-fenced bank could have an important impact on the real economy, which in turn could affect the ring-fenced banks' assets and costs of financing. Furthermore, both banks will depend on the same capital and debt markets. Any disruption to these markets created by the activity of non-ring-fenced banks would also have a direct impact on ring-fenced banks' funding. Thus by failing to fully rein in the risky activity of non-ring-fenced banks, the ring-fence proposals may do relatively little to reduce the probability of contagion to ring-fenced banks.

Some commentators also argue that the ring-fence will lead to a concentration of particular assets in the ring-fenced bank. This means the ring-fenced bank could be more vulnerable to risks in certain key sectors than might otherwise have been the case if it were able to have a more diversified approach. Furthermore, in the UK certain retail banks proved vulnerable to the crisis as a result of high loan-to-value ratios, poor underlying analysis of credit risks and lending at high income multiples – all of which are not fully addressed by the ICB reforms.

How to avoid inhibiting banks' vital intermediation role and prolonging the current crisis?

Aside from the risks that the financial sector can pose to the real economy, banks also have a vital role in providing credit to support growth and the economic recovery. There is significant debate about the extent to which current economic conditions and financial regulation may be impacting on the cost and supply of credit by banks.

The ICB recommendations will impose costs on banks. These costs are likely to be substantial, especially in the short-run and depending on banks' ability to absorb them, could have an additional impact on the price and supply of credit.

The size of any potential impact will depend to a large extent on the timing of implementation. Whilst implementation is officially scheduled for full completion by 2019, the Government has indicated that it will look to implement certain elements more rapidly. Furthermore, market expectations often lead to a more rapid implementation than set out by official timelines.

Loss-absorbency measures: The loss absorbency measures are likely to have a very significant ongoing impact on banks' balance sheets through an increase in funding costs. Funding costs could increase as a result of several factors:

— The requirement to hold increased capital of a higher quality;

— The requirement to hold larger proportions of more expensive, long-term financing to satisfy minimum loss-absorbency requirements;

— The loss of the Government guarantee, which is likely to be most significant for non-ring-fenced banks.

More indirectly, increased loss absorbency measures may also have a detrimental impact on the international competitiveness of UK banks. This could have a long-term impact on UK banks' profitability and therefore lending.

Ring-fence measures: The costs of ring-fencing measures are likely to be most pronounced in the short-run. They will include:

— *Implementation costs* associated with moving to new structures (for example, the possible need to create a new wholesale entity or establish separate arrangements for the use of branches and ATMs),

— *Legal costs* (for example, associated with the rewriting of contracts, counterparty documentation)

— *Tax costs and possible pensions implications.*

There may also be additional effects on lending – as highlighted earlier – if the balance sheets of ring-fenced and non-ring-fenced banks cannot be easily matched.

Overall, the ICB estimate that the annual pre-tax costs to UK banks of the reforms could be between £4bn and £7bn. The UK Government believes that the range may be slightly larger at between £3.5bn and £8bn. Industry estimates are even higher. Based on its own calculations, the UK Government estimates that the additional bank costs would translate into a gross reduction in GDP or around £0.8 to £1.8bn p.a. in the long-term.

Ultimately the overall costs of the reform are extremely uncertain and will likely be significantly higher in the short-run. Much will depend on how the Government resolves some of the implementation challenges set out earlier in the article, as yet unknown market conditions in the future and the extent to which the reforms have a longer term impact on UK banks' competitiveness.

6 Conclusion

The UK financial sector has been both a major source of growth, employment and fiscal revenue as well as a significant risk factor to the UK economy.

The ICB recommendations are an attempt to address the financial sector's role in the origins of the crisis and to reduce the need for taxpayer involvement in future crises, while at the same time maintaining the UK's position as a leading financial centre.

This article has argued that the ICB recommendations are a combination of two different routes to tackling the same problem. The loss-absorbency measures are an extension of the international regulatory reform undertaken to date – they are quantitatively but not significantly qualitatively different. By contrast, the ring fencing proposal is fundamentally a different route, based not on adjusting regulation to the existing system but in attempting to reform the structure of the system itself.

Attempting to implement these two distinct approaches at the same time, as well as navigating amongst various other regulatory reform developments and a still fragile economy, is likely to prove a challenging task for UK authorities and the financial sector itself. There are important practical decisions to be made that will have an impact on the likely cost.

The additional loss-absorbency measures should help to reduce the likelihood of future crises and reduce the probability of future taxpayer support. However, these measures will have a significant impact on banks' funding costs and spillover effects for short-term lending cannot be ruled out. Furthermore, requiring retail banks to hold more capital does not reflect the low risk posed by retail activity and as a result harms the efficiency of retail banks.

This article has also questioned whether the marginal benefits from the artificial separation of retail and wholesale activities are commensurate with the likely additional costs. The approach is based on the assumption that ring-fenced banks can be isolated from potential contagion risks posed by wholesale banking. However, this fails to recognise that both banks are linked via the shared economy and therefore it will never be fully possible to eliminate contagion risks.

FSB TRANSPARENCY INITIATIVES

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FSB TRANSPARENCY INITIATIVES

Starting in the summer of 2007, the world experienced financial market turmoil that grew into a global financial crisis, and challenging international market conditions have persisted in its aftermath. Over this period, the Financial Stability Board (FSB) (and, up to April 2009 its predecessor, the Financial Stability Forum (FSF)), has been called upon by the leaders of the G20 countries to analyze the causes of the international market turmoil and to agree coordinated financial reforms that address core problems and lay the foundations to strengthen market and institutional resilience and promote financial stability.[1] As part of this work, G20 leaders asked the FSF to conduct an analysis of procyclicality in the financial system and recommend policy options to mitigate it. Efforts to enhance transparency have been an important part of coordinated financial reforms, including through convergence activities of the International Accounting Standards Board (IASB) and the U.S. Financial Accounting Standards Board (FASB).

This article summarizes the key financial stability initiatives of the FSB that seek to enhance transparency and move toward improved global accounting and auditing standards and practices.

1 Prior to the financial crisis

The FSB and its predecessor FSF recognized the importance of promoting transparency by encouraging high quality international accounting and auditing standards and practices, and improved disclosure practices. These enhance the quality of information available to investors and other market participants, regulators and prudential authorities, which can help to improve market discipline, reinforce sound risk management practices and improve the consistency of capital measures and ratios. External audits performed in accordance with high quality auditing standards can promote appropriate implementation of accounting standards by firms and help to enhance market confidence by providing assurance that the financial statements are presently fairly in accordance with the relevant accounting framework. Moreover, through interaction with firms' governance and management processes, sound audits can help reinforce strong corporate governance and internal controls at firms and, in certain cases, more reliable supervisory reports. Together with effective supervision and other factors, the above can help to foster safe and sound banking systems and more stable financial markets.

The IASB Chairman has long been a member of the FSF and FSB, serving on both the FSB Plenary – its policy making body – and its Steering Committee. Also, the International Financial Reporting Standards (IFRS) of the IASB and the International Standards on Auditing of the International Auditing and Assurance Standards Board (IAASB) are among the key standards for sound financial systems designated by the FSB as deserving of priority implementation, because of their importance for financial stability.[2]

1 The FSB was established in April 2009 to coordinate at the international level the work of national financial authorities and international standard setting bodies and to develop and promote the implementation of effective regulatory, supervisory and other financial sector policies in the interest of financial stability. It brings together national authorities responsible for financial stability in 24 countries and jurisdictions, international financial institutions, sector-specific international groupings of regulators and supervisors, and committees of central bank experts. The FSB is chaired by Mark Carney, Governor of the Bank of Canada. Its Secretariat is located in Basel, Switzerland, and hosted by the Bank for International Settlements. For further information on the FSB, visit the FSB website, www.financialstabilityboard.org.

2 See http://www.financialstabilityboard.org/cos/key_standards.htm.

In the years preceding the financial crisis, the FSF carefully considered the IASB's progress in developing and improving its main standards affecting financial institutions, as well as important accounting and auditing developments and issues arising in its member jurisdictions.

- The FSF called for the establishment of the Public Interest Oversight Board to provide independent oversight to the international audit standard-setting activities of the International Federation of Accountants (IFAC), and was a strong supporter of the Monitoring Group that worked with IFAC in the development of reforms of its standard-setting activities in 2003. The FSB continues this work as a member of the Monitoring Group.

- The FSF also encouraged the establishment of independent auditor oversight regimes and promoted cooperation among audit oversight authorities (also called audit regulators). The FSF strongly supported the formation of the International Forum of Independent Audit Regulators (IFIAR), recognizing the role it could have in enhancing communication and coordination among audit regulators and bringing more consistency to global audit regulation over time.

- Moreover, the FSF conducted joint international roundtables in 2004 and 2006 together with the IASB and IFAC on ways to improve international accounting and auditing practices.

In addition, the FSF maintained dialogue with leading global financial institutions and audit firms on important international accounting, auditing and disclosure issues affecting financial markets such as valuation, impairment, off-balance sheet entities and related risk management and control practices.

2 Initial recommendations in early 2008 as the market turmoil deepens[3]

In October 2007, the G7 Finance Ministers and Central Bank Governors asked the FSF to undertake an analysis of the causes and weaknesses that produced the market turmoil and to set out recommendations for increasing the resilience of markets and institutions, and to report to their meeting in Washington in April 2008.

The findings and recommendations in the FSF's report in April 2008 were the product of an intensive collaborative effort of the main international bodies and national authorities in key financial centers. To address the G7 request, the FSF formed a senior working group from among its membership. They drew on a large body of coordinated work, comprising that of the Basel Committee on Banking Supervision (BCBS), the International Organization of Securities Commissions (IOSCO), the International Association of Insurance Supervisors (IAIS), the Joint Forum, the IASB, the Committee on Payment and Settlement Systems (CPSS), the Committee on the Global Financial System (CGFS), the International Monetary Fund (IMF), the Bank for International Settlements (BIS) and national authorities in key financial centers. In addition, insights had been gained from private sector market participants.

To restore confidence in the soundness of markets and institutions and enhance the resilience of the global financial system, the FSF proposed concrete actions in the following five areas:

3 "Report of the Financial Stability Forum on Enhancing Market and Institutional Resilience", April 2008. See www.financialstabilityboard.org/publications/r_0804.pdf.

– Strengthened prudential oversight of capital, liquidity and risk management;

– Enhancing transparency and valuation;

– Changes in the role and uses of credit ratings;

– Strengthening the authorities' responsiveness to risks; and

– Robust arrangements for dealing with stress in the financial system.

In order to enhance transparency and valuation, the FSF report encouraged a number of actions, including needed risk disclosure, valuation and accounting convergence reforms. In assessing challenging situations during the market turmoil, the FSF found that:

– Weaknesses in public disclosures by financial institutions had damaged market confidence. Public disclosures that were required of financial institutions did not always make clear the type and magnitude of risks associated with their on- and off-balance sheet exposures. There were also shortcomings in the other types of information firms provided about market and credit risk exposures, particularly as these related to structured products. Where information was disclosed, it was often not done in an easily accessible or usable way.

– The turbulence revealed the potential for adverse interactions between high leverage, market liquidity, valuation losses and financial institutions' capital. For example, write-downs of assets for which markets were thin or buyers were lacking raised questions about the adequacy of capital buffers, leading to asset sales, deleveraging and further pressure on asset prices. Poor information availability reinforced these adverse feedback loops.

The market turmoil highlighted the importance to market confidence of reliable valuations and useful disclosures of the risks associated with structured credit products and off-balance sheet entities. To address these particular issues, the FSF report called for specific actions by market participants, standard-setters, supervisors and regulators relating to:

– Risk disclosures by market participants;

– Accounting and disclosure for off-balance sheet entities;

– Valuation; and

– Transparency in securitization processes and markets

These recommendations are summarized in Box 1.

Robust risk disclosures:

- The FSF strongly encouraged financial institutions to make robust risk disclosures using leading disclosure practices (summarized in the FSF report), at the time of their mid-year 2008 reports.
  - The private sector should jointly develop principles for relevant risk disclosures and identify leading risk disclosure practices based on current market conditions and risk at the time of the disclosure.
- Further guidance to strengthen disclosure requirements under Pillar 3 of Basel II was issued by the BCBS in 2009.

Standards for off-balance sheet vehicles and valuations:

Relevant standard setting bodies took urgent action to:

- Improve and converge financial reporting standards for off-balance sheet vehicles;
- Develop accounting, supervisory and auditing guidance on valuations when markets are no longer active, including calling for the establishment of an IASB expert advisory panel on valuations.

Transparency in structured products:

- Market participants and securities regulators took steps to expand the information provided about securitized products and their underlying assets.

Improved risk disclosure and valuation by market participants

The FSF's first recommendation strongly encouraged financial institutions to make robust risk disclosures using leading disclosure practices at the time of their upcoming mid-year 2008 reports. These leading-practice risk disclosures were summarized in the FSF report and based on a survey by the Senior Supervisors Group (SSG) of end-2007 risk disclosures for selected exposures that the marketplace considered to be high-risk or involve more risk than previously thought.[4, 5] Specifically, the FSF recommended robust, consistent disclosures about the following types of exposures:

- Collateralized debt obligations, including related hedges;
- Other subprime and Alt-A exposures;
- Special purpose entities (SPEs);
- Commercial mortgage-backed securities; and
- Leveraged finance exposures.

The report stressed that these disclosures should be made by financial institutions for significant risk exposures. FSB communicated the FSF recommendations to financial institutions in their jurisdictions and encouraged enhanced disclosure practices for those with significant exposures. In response to the recommendations by the FSF and others,

4 Senior representatives of eight supervisory authorities from five countries (collectively the "Senior Supervisors Group" or SSG) joined in issuing a report to the FSF that reviewed the disclosure practices of financial services firms concerning their exposures to certain financial instruments that the marketplace in early 2008 considered to be high-risk. The SSG analyzed year-end 2007 disclosures by a sample of large internationally-oriented banks and securities firms, in its report to the FSF, *Leading-Practice Disclosures for Selected Exposures,* April 2008.

5 The term "leading" was used by the FSF and SSG to mean most informative, both as regards quantity and quality of information (e.g., the data would enable market participants to assess the risks and returns of investments in or exposures to the firm; so that market participants can properly understand data that are disclosed). The proposed disclosures were intended to supplement rather than replace existing risk disclosures, including those required under Pillar 3 of Basel II. The FSF noted that, in this context, disclosure broadly included not only information presented in public securities filings but also information presented in earnings press releases and accompanying presentation slides posted to the firms' internet websites.

many large banks started to provide more meaningful and consistent quantitative and qualitative information about structured credit risk exposures, valuations, off-balance sheet entities and related policies from mid-2008.[6]

A second set of principles-based recommendations included in the FSF report encouraged investors, financial industry and auditors to work together to provide principles and leading practice risk disclosures that would be most relevant to market conditions at the time of disclosure. This would help keep disclosures fresh and reflective of the risks truly being faced at those future reporting dates, and avoid institutions focusing undue attention on making supplemental disclosures focusing on yesterday's risk issues that are no longer relevant to the marketplace.

Third, the FSF report called on financial institutions to establish rigorous valuation processes and make robust valuation disclosures. To this end, they should:

- Establish rigorous and timely processes to apply critical expert judgment and discipline in how they value holdings of complex or illiquid instruments (avoiding undue reliance on ratings and consensus pricing services);

- Maintain sound governance and control practices associated with valuation processes, including those that deal with hard-to-observe inputs to valuation models, model validations, price verification and related audit programs; and

- Enhance the quality of their disclosures about valuations, valuation methodologies, price verification processes and the uncertainty associated with valuations.

BCBS initiatives requested by the FSF

The FSF's work spurred additional measures by banking supervisors to enhance transparency. The BCBS issued in 2009 further guidance to strengthen disclosure requirements under Pillar 3 of Basel II, for example, for securitization exposures, off-balance sheet entities, liquidity commitments to asset-backed commercial paper conduits and valuations.

Also, the BCBS issued supervisory guidance for assessing banks' financial instrument fair value practices in April 2009. The principles in this supervisory guidance promote strong governance over valuation processes; the use of reliable, diverse information sources for valuation inputs; the communication of valuation uncertainty to internal and external stakeholders; independent verification and validation processes; consistency in valuation practices for risk management and reporting purposes, where possible; and strong supervisory review of bank valuation practices.

Initiatives by accounting and auditing standard setters

Accounting and auditing standard-setters also took forward the FSF's initiatives. In response to the FSF's recommendations to enhance transparency and valuation, the IASB implemented a number of key projects. Given the importance of these initiatives, these projects were undertaken on an accelerated timetable.[7]

6 The FSB Thematic Review on Risk Disclosure Practices, March 2011, found that this has improved risk disclosure practices related to structured credit activities, including exposures to SPEs, asset-backed securities, mortgage-backed securities and collateralized debt obligations. See http://www.financialstabilityboard.org/publications/r_110318.pdf.

7 At the time of the development of the FSF report, the IASB due process requirements resulted in significant time to propose and finalize standards and the IASB did not have procedures for accelerating projects. Such procedures were later approved by the trustees overseeing the IASB, now called the IFRS Foundation.

– In October 2008 the IASB enhanced its guidance on valuing financial instruments when markets are no longer active, based on the findings of an expert advisory group on valuation that it had established in June 2008.[8] The IASB also issued proposals to strengthen disclosures about valuations and related governance, controls, methodologies and uncertainties.

– Moreover, as mentioned in the FSF recommendations, the IASB developed proposals to enhance its standards on consolidation of off-balance sheet entities and related risk disclosures and finalized these proposals during 2009 to 2011.

Furthermore, the FSF report indicated that the IAASB, major national standard setters and relevant regulators should enhance the guidance for audits of valuations of complex or illiquid financial products and related disclosures, where necessary. The report recommended that the largest global audit firms provide input to this process by sharing their audit approaches in addressing auditing and financial reporting issues resulting from the market turmoil and which could be used for enhancing auditing guidance. The IAASB issued a Staff Audit Practice Alert in October 2008 on audits of valuations and complex products and also discussed these issues with the largest international audit firm networks to encourage improved practices.[9]

The FSF report also called for the IASB and the US FASB to converge their standards and guidance in key areas. In addition, as discussed below, the calls from the marketplace for convergence strengthened as the financial crisis deepened.

In addition to recommendations in the reports of the FSF and FSB, the FSB supported dialogue to foster better understanding and communication with respect to important international accounting, auditing and risk disclosure issues, including the following:

Senior official dialogue:

– The FSB Chairman, Secretary General and senior advisor maintained dialogue with the Chairmen of the IASB, U.S. FASB and IAASB on key developments in projects of interest to the FSB.

– The FSB supported the IASB in maintaining enhanced technical dialogue with senior representatives of its member bodies and with the accounting committees of IOSCO, the BCBS and IAIS.

– The FSB conducted roundtables and other focused meetings to foster dialogue between senior officials in the private and public sectors on important accounting, auditing, and risk disclosure developments and issues.

8 This IASB guidance was issued in the following report: www.ifrs.org/NR/rdonlyres/0E37D59C-1C74-4D61-A984-8FAC61915010/0/IASB_Expert_Advisory_Panel_October_2008.pdf.

9 Following, in part, from the FSF recommendation to the IAASB and other audit authorities, in 2009 and 2010 the IAASB proposed improvements in its audit guidance for complex financial instruments that draws attention to relevant aspects of accounting for fair value measurement and related disclosures and practical considerations when auditing such instruments. The IAASB finalized this as IAPN 1000.

Technical dialogue:

- The FSB senior advisor participated in (a) the IASB-FASB Financial Crisis Advisory Group; (b) the IASB Expert Advisory Panel on Valuations and (c) the IASB Expert Advisory Panel on Impairment.

- The FSB Secretariat maintained ongoing technical dialogue with the IASB and FASB project experts on key aspects of their convergence progress.

3 The G20 Leaders and FSB on procyclicality, convergence and transparency

In its April 2008 Report, the FSF noted that it would examine the forces that contribute to procyclicality in the financial system and develop options for mitigating it. At the G20 Leaders Summit in London in April 2009, the FSF issued a report, "Addressing Procyclicality in the Financial System".[10]

The term "procyclicality" refers to the dynamic interactions between the financial and the real sectors of the economy. These mutually reinforcing interactions tend to amplify business cycle fluctuations and cause or exacerbate financial instability. The global financial crisis was a graphic example of the disruptive effects of procyclicality. Institutions that experienced extensive losses faced growing difficulties in replenishing capital. This, in turn, induced them to cut credit extension and dispose of assets. Their retrenchment precipitated a weakening of economic activity, thereby raising the risk of a further deterioration in their financial strength. Addressing procyclicality in the financial system is an essential component of strengthening the macroprudential orientation of regulatory and supervisory frameworks.

The FSF report examined the forces that contribute to procyclicality in the financial system, and explored possible mitigating actions in three main areas: (i) the Basel II capital accord; (ii) loan loss provisioning; and (iii) valuation and leverage, including margining practices. The recommendations in the report were the result of collaborative work involving national authorities, the BCBS, BIS, CGFS, IMF, IOSCO, the IASB and the U.S. FASB.

At the London summit meeting, the FSF was re-established as the FSB with a broadened mandate to promote financial stability. The G20 Leaders welcomed the accounting recommendations in the FSF's procyclicality report and requested action by accounting standard-setters.[11] The G20 Leaders also called on "the accounting standard setters to work urgently with supervisors and regulators to improve standards on valuation and provisioning and achieve a single set of high-quality global accounting standards".[12] Specifically, the G20 Leaders encouraged accelerated efforts by the IASB and FASB to finalize improved, converged accounting standards and efforts to enhance the governance of the IASB.

The G20 Leaders requested that the FSB monitor implementation efforts, including those addressing accounting issues. Starting with its progress reports to the G20 Leaders in September 2009, the FSB has included recommendations on accounting matters in its communications with the G20, including an assessment of IASB-FASB convergence progress. Box 2 provides an example of FSB recommendations on impairment and valuation presented in its progress report to the G20 Leaders at the Pittsburgh Summit in September 2009.

10 See www.financialstabilityboard.org/publications/r_0904a.pdf.
11 G20 Leaders, "Declaration on Strengthening the Financial System – London Summit, 2 April 2009".
12 G20 Leaders, "London Summit – Leaders' Statement, 2 April 2009".

31. Moreover, continuing differences in accounting requirements of the IASB and FASB for netting/offsetting of assets and liabilities also result in significant differences in banks' total assets, posing problems for framing an international leverage ratio.

32. Therefore, additional work in the areas above is urgently needed in order to meet the important objectives of convergence, transparency and the mitigation of procyclicality, as standard setters continue their efforts to improve the quality of their standards and reduce the complexity of their standards on financial instruments.

33. We strongly encourage the IASB and FASB to agree on improved converged standards that will:

– incorporate a broader range of available credit information than existing provisioning requirements, so as to recognize credit losses in loan portfolios at an earlier stage as part of an effort to mitigate procyclicality. We are particularly supportive of continued work on impairment standards based on an expected loss model; and

– simplify and improve the accounting principles for financial instruments and their valuation. We are particularly supportive of continued work in a manner that does not expand the use of fair value in relation to the lending activities (involving loans and investments in debt instruments) of financial intermediaries.

34. While respecting the independence of accounting standard setters, the FSB is urging renewed efforts by the IASB and FASB to achieve these objectives, working with supervisors, regulators and other constituents. The Basel Committee has issued for consideration by accounting standard setters principles for the revision of accounting standards for financial instruments, agreed by all G20 banking supervisors, that address issues related to provisioning, fair value measurement and related disclosures.

35. We welcome the IASB's recent initiatives with respect to provisioning and its enhanced technical dialogue with prudential supervisors and other stakeholders, and encourage the IASB to continue its dialogue with stakeholders as it moves forward. We request G20 Leaders to support the call for action set forth in this section.

Encouragement to consider expected loss provisioning

The call of the G20 Leaders to the IASB and FASB to enhance accounting for loan loss "impairment" or "provisioning", was largely encouraged by FSF/FSB work at that time. Under both IASB standards (called International Financial Reporting Standards or IFRS) and FASB standards (called generally accepted accounting principles or GAAP), the accounting model for recognizing credit losses is commonly referred to as an "incurred loss model" because the timing and measurement of losses is based on estimating losses that have been incurred as of the balance sheet date. Provisioning requirements in IASB and FASB standards thus generally limit provisioning to losses that are considered probable as of the balance sheet date. In addition, these accounting standards do not permit credit losses based on events that are expected to occur in the future to be included in provisions until the event or events that would probably result in a loss have occurred, generally supported by observable evidence (e.g., borrower loss of employment, decrease in collateral values).

While the incurred loss model had been ingrained in the thinking of standard-setters for many years, the experience of the financial crisis highlighted problems, particularly with the delayed recognition of credit losses caused by the incurred loss standards. These delays resulted in the recognition of credit losses that were widely regarded as "too little, too late".

New thinking was needed, based on lessons from the financial crisis, to reform the accounting approach in this area in a manner that would support the overall goal of improving transparency. The FSF Working Group on Provisioning, co-chaired by Kathleen Casey, Chairman of IOSCO's Technical Committee and SEC Commissioner, and by John Dugan, Chairman, Joint Forum, and US Comptroller of the Currency, brought together securities regulators, banking supervisors, accounting standard-setters and audit regulators to evaluate this key area. Both U.S. and international accounting perspectives

were carefully explored. The IASB and FASB were fully involved, as were BCBS representatives and the chairmen of IFIAR and the U.S. Public Company Accounting Oversight Board. The working group also engaged in outreach involving investors, external auditors and financial institutions. This effort helped to ensure that the group's findings would address needs of investors while also addressing certain key prudential objectives.

In April 2009, based on the working group's recommendations, the FSF's procyclicality report to the G20 noted that: "Earlier recognition of loan losses could have dampened cyclical moves in the current crisis... Earlier identification of credit losses is consistent both with financial statement users' needs for transparency regarding changes in credit trends and with prudential objectives of safety and soundness." The FSF report recommended: "The FASB and IASB should reconsider the incurred loss model by analyzing alternative approaches for recognizing and measuring loan losses that incorporate a broader range of available credit information."

In its progress report to the G20 Leaders in September 2009, the FSB noted that, "We are particularly supportive of continued work on impairment standards based on an expected loss model". [13]

This encouragement has led to valuable work by the accounting standard setters. The IASB proposed an expected loss impairment or provisioning model in November 2009. The FASB, after first proposing in May 2010 a modified version of the incurred loss model, has been working jointly with the IASB since early 2011 on clarifying and finalizing an expected loss impairment approach.

Encouragement to further improve financial instruments and valuation standards

As previously mentioned, the FSF procyclicality report in April 2009 had also involved an assessment of valuation and leverage issues. The report found that:

> "The extensive use of fair value accounting encouraged market practices that contributed to excessive risk-taking or risk-shedding activity in response to observed changes in asset prices. In the course of the present crisis, this mechanism became clear at times of adverse market dynamics, particularly as liquidity in financial markets evaporated. When the markets for many credit risk exposures became illiquid over 2007-08, credit spreads widened substantially as liquidity premia grew. Wider spreads drove down mark-to-market valuations on a range of assets. Some fair valued assets that became illiquid were marked down to match declines in traded derivative indices.
>
> The extensive use of fair value accounting meant that, across the financial system, these declines in valuations translated into lower earnings or accumulated unrealised losses in the equity account for securities held for sale. Mark-to-market losses eroded banks' core capital, causing balance sheet leverage to rise. Banks sold assets in an attempt to offset this rise in balance sheet leverage and to address liquidity issues, but such sales only pushed credit spreads wider, causing more mark-to-market losses."

This effort resulted in two sets of accounting recommendations, summarized below, which were developed with input from the IASB, IOSCO, the SEC, and the BCBS.

13 "Improving Financial Regulation, Report of the Financial Stability Board to G20 Leaders", September 2009.

– Accounting standard setters and prudential supervisors should examine the use of valuation reserves or [valuation] adjustments for fair valued financial instruments when data or modeling needed to support their valuation is weak.[14]

– Accounting standard setters and prudential supervisors should examine possible changes to relevant standards to dampen adverse dynamics potentially associated with fair value accounting. Possible ways to reduce this potential impact include the following:

  – Enhancing the accounting model so that the use of fair value accounting is carefully examined for financial instruments of credit intermediaries.

  – Transfers between financial asset categories.

  – Simplifying hedge accounting requirements.

In its progress report to the G20 Leaders at the Pittsburgh Summit in September 2009, the FSB noted that it was particularly supportive of standards that would not expand the use of fair value in relation to the lending activities of financial intermediaries. Considering the views of stakeholders, the IASB issued IFRS 9, "Financial Instruments", in November 2009 which includes an amortized cost category for financial assets such as loans and certain investments in debt securities. The other aspects of the above recommendations have been reflected by the IASB in IFRS 9 and IFRS 13, "Fair Value Measurement", as well as in the IASB's planned new hedge accounting standard, which seeks to simplify hedge accounting requirements in ways that are more consistent with companies' risk management practices.

In early 2010 it looked as though divergent accounting standards for lending activities might arise, due to a FASB proposal to use fair value measurement on the balance sheet and through "other comprehensive income" for loans and investments in debt securities. Under this proposal, changes in fair values of lending instruments would affect reported shareholders' equity, but generally would not be included in profit and loss. However, in response to FASB's request for feedback from interested parties on the proposal, and based upon extensive outreach by the FASB, the majority of investors and other stakeholders indicated they did not agree with the fair value measurement recognition aspects of that proposal as it relates to lending activities, deposits, and other liabilities. The FASB has since moved away from this proposal, and has decided in its revised approach to use amortized cost as a measurement basis for loans.

FSB monitoring of IASB-FASB convergence progress

Starting in 2009 the FSB has been reporting to the G20 Leaders on progress in implementing the recommendations of the G20 and the FSB, including those on accounting matters. Progress has been achieved so far in many of these areas. For example:

– *Measurement of loans.* As discussed above, both the IASB and the FASB have decided that their financial instruments accounting standards will use amortized cost as a measurement basis for loans, moving away from an earlier FASB proposal to require fair value measurement for loans.

14 The report noted that, "Standard setters and supervisors should explore whether firms should be required to hold valuation reserves or to otherwise adjust valuations to avoid overstatement of income when significant uncertainty about valuation exists. For financial instruments that are not actively traded, insufficient market depth or reliance on valuation models using unobservable inputs that are difficult to verify may create considerable valuation uncertainty."

– *Loan provisioning/impairment.* Following the above recommendations of the FSB, both Boards are seeking to develop and finalize an expected loss approach for impairment that should lead to more robust, forward-looking impairment practices that are intended to result in an earlier recognition of credit losses based on consideration of all available information about credit quality and trends.

– *Off-balance sheet entities.* The FSB has encouraged improved IASB accounting and disclosure standards for off-balance sheet vehicles. The IASB's final disclosure standards in 2011 enhance information about risk exposures that remain when a financial asset has been derecognized (e.g. securitized), including improved information about unconsolidated structured entities, and are broadly aligned to FASB disclosure requirements.[15]

– *Addressing valuation uncertainty in fair value measurement guidance.* The FSB recommended that standard setters and supervisors explore whether firms should be required to hold valuation reserves or to otherwise adjust valuations to avoid overstatement of income when significant uncertainty about valuation exists. Final improved IASB and FASB fair value measurement standards in 2011 have aligned requirements about how to measure fair value, including guidance on measurement when markets become less active, and to address valuation uncertainty.

– *Repurchase agreements.* The FSB had expressed concern that the IASB's consultation proposal on derecognition would require repurchase agreements to be treated as sales and forward contracts in certain situations (thus leading to off-balance-sheet treatment), instead of as financing transactions on the balance sheet as under current IFRS. The IASB decided not to move forward with its proposal. The FASB has also taken steps to review its accounting for repurchase agreements and plans steps in 2012 that could further converge its approaches with those of the IASB, for example, by eliminating "repo-to-maturity" accounting approaches under FASB standards which result in off-balance sheet treatment for those transactions.[16]

– *Risk disclosures.* As a result of the efforts of the two Boards, improved risk disclosure requirements are in place. However, not all are converged at this time.

While progress has been made toward improved, converged standards, the convergence process is taking longer than initially expected in some areas, such as classification, measurement and provisioning, and it appears that the Boards are diverging with respect to their ongoing projects on hedge accounting. The FSB has encouraged the Boards to redouble their efforts to seek converged standards in these important areas.

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15 In their joint update report on convergence progress to the the FSB and G20 in April 2012, the IASB and FASB said, "The boards have completed their respective consolidation projects, which included addressing issues about the consolidation of special purpose entities and enhanced disclosures about off balance sheet risks. The new IFRS requirements will also bring into force new disclosure requirements relating to structured entities (special purpose entities), making IFRS and US GAAP disclosure requirements similar. Differences remain, however, in relation to what US GAAP refers to as voting interest entities; US GAAP has a legalistic approach to defining control, whereas the new IFRS has a broader definition of control, including effective control. On the basis of feedback received, the FASB also decided to expose the principal-agent sections of the IFRS model." This joint report can be found on the FSB website. See www.financialstabilityboard.org/publications/r_120420d.pdf.

16 For a summary explanation of the accounting treatment for repo-to-maturity transactions and concerns about their use at MF Global, see www.cnbc.com/id/45132384/The_Trade_That_Killed_MF_Global,

The netting/offsetting of derivative contracts and other financial assets and financial liabilities is another area where the FSB has expressed concerns. In this case, where different approaches result in significant differences in the total assets of large financial institutions, the Boards decided to maintain their different current offsetting *accounting* rules while issuing at end-2011 new requirements for common *disclosures* about gross and net positions for derivatives and other financial instruments to improve transparency. This follows the Boards' issuance of a joint proposal in January 2011 on a converged accounting approach to balance-sheet netting. However, instead of the 2011 proposal, comments from the U.S. generally supported the current FASB netting rules and those using IFRS generally supported current IASB rules, with many investors seeking both gross and net information. Derivatives dealer banks, both inside and outside the U.S., generally wanted the FASB (net) accounting approach in order to avoid the massive grossing-up of their balance sheets.

The FSB noted a concern in this area was that differences in offsetting/netting accounting standards would adversely affect the efforts to develop an internationally comparable leverage ratio for capital purposes. However, while the IASB and FASB have decided to maintain their different accounting rules for netting/offsetting, the FASB netting approach and the netting approach that will be carried forward to the Basel III international leverage ratio are similar in their effect because both recognize netting/offsetting based on legally enforceable master netting agreements. Thus, from a bank supervisory perspective, there may be more convergence for leverage ratio purposes than is first apparent.

Some were concerned that the IASB and FASB have revised their target completion dates for their remaining convergence projects so that they extend into 2013, beyond the end-2011 date called for earlier by the G20. The FSB reported to the G20 in April 2012 that the IASB and FASB will conduct further public consultations in the second half of 2012, and expect to issue final converged standards in a number of key areas by mid-2013. The two Boards mentioned that they have extended certain project target completion dates in order to allow sufficient time for outreach and public comment on the large number of planned major Exposure Drafts, and for the Boards to reflect that feedback in high-quality final standards. The FSB reported to the G20 that it supports the efforts of the IASB and FASB to achieve convergence to a globally accepted set of high-quality accounting standards and urges them to issue final converged standards on key projects by mid-2013.[17]

4 Improving the contribution of external audits to financial stability[18]

In March 2012, the FSB issued a public statement underscoring the importance of work to improve external audits by:

- enhancing the information provided to prudential supervisors and regulators of financial institutions, and

- reinforcing the effectiveness of the regulation of external audits, particularly those of financial institutions.

The financial crisis demonstrated the importance of addressing these issues. Work to improve audit practices and standards is ongoing, with some regulators and auditing

17 FSB Chairman's letter, "To G20 Finance Ministers and Central Bank Governors, Progress of Financial Regulatory Reforms", 16 April 2012. See www.financialstabilityboard.org/publications/r_120420a.pdf.

18 See press release at www.financialstabilityboard.org/press/pr_120315.pdf.

standard setters having issued finalized guidance on certain audit issues, and proposals in some other jurisdictions having been issued subject to public consultation. In view of the global nature of markets, financial institutions and audit firms, greater international consistency in external audit practices and requirements will be important while continuing to promote their high quality.

In particular, the FSB encouraged further work in the following areas:

1 *Improving the information that external audits provide to prudential supervisors and regulators of financial institutions, including systemically important financial institutions (SIFIs).* As part of this effort, the FSB will provide input to the BCBS' ongoing revision of its external audit policy papers and as it develops new robust external audit guidance, to be proposed by end-2012, and to the IAIS as it updates and enhances its policies with respect to external audits of insurance companies.

2 *Reinforcing the effectiveness of audit regulation, particularly for external audits of financial institutions, to improve audit quality.* The FSB is requesting IFIAR to report on (i) challenges and problems that its members have identified in their inspection programs relating to external audits of financial institutions, including audits of SIFIs; (ii) responses by IFIAR members to those issues, including follow-up with external audit firms; and (iii) member recommendations concerning steps that could be taken by audit regulators and auditors to further strengthen external audits of financial institutions. IFIAR decided at its Plenary meeting in April 2012 that it will seek to provide the report requested by the FSB by end-2012.

The FSB also announced that it recognizes the importance of other work underway to improve audit practices and standards and:

– encourages the continued efforts of the IAASB, internationally, and other audit standard setters in their national contexts to improve the standards on information that external audits provide to investors and other financial report users. The approaches set forth in various consultative documents differ across jurisdictions, and it will be important to seek high quality standards that enhance audit practices, and to the extent possible, improved international consistency. IOSCO has agreed to monitor developments in this area and provide updates to the FSB on progress.

– asks IOSCO to report to the FSB on authorities' experiences with the considerations in IOSCO's 2008 report on audit contingency planning.

– asks FSB members and other key bodies such as the IAASB, to provide input to the World Bank's review of how to enhance its Accounting and Auditing Reports on Standards and Codes (ROSCs).

The FSB will continue to support dialogue between audit standards setters and regulators, investors, market regulators, prudential authorities, financial institutions and audit firms on improving the quality of external audit and its contribution to financial stability.

5 Recent FSB efforts to further enhance risk disclosure practices

As previously mentioned, the importance to market confidence of useful disclosure by financial institutions of their risk exposures and risk management practices has been underscored in recent years. Building on the March 2011 FSB thematic peer review report and a roundtable held in December 2011, the FSB has undertaken an initiative to further enhance risk disclosure practices.

Consideration of whether enhanced risk disclosures are needed as new risk areas are identified

The FSB is following up on a recommendation in the FSB thematic review report, by considering on an ongoing basis whether there is a need for improved disclosures about new risk areas as these are identified. During 2012 the FSB will deepen these assessments, and will continue to draw on relevant expertise from the private sector in doing so. Efforts involving international standard setting bodies and joint private sector initiatives will in many cases be the most appropriate manner to take any new risk disclosure recommendations forward. The report recommended that the FSB should coordinate as necessary the alignment of the activities of standard setting bodies to fill any gaps arising because of a lack of a timely response or from financial stability concerns.

Summary of key themes that arose during the FSB roundtable on risk disclosure

In December 2011, the FSB hosted a roundtable on risk disclosures by financial institutions.[19] Eighty-two senior officials and other experts from around the world took part, representing investors and analysts, asset managers, credit rating agencies, banks, insurance companies, audit firms, audit regulators, accounting and auditing standard setters, as well as prudential and market authorities. The roundtable fostered a rich and lively dialogue about the current state of risks and related disclosures and how to improve their transparency. The key themes that arose during the course of the discussion are summarized below:

- *Risk disclosure foundations.* Participants generally preferred risk disclosure requirements in accounting standards and securities regulatory requirements that are principles-based rather than rules-based, but investors also called for measures to improve comparability, such as more consistent risk disclosure formats or templates. Principles-based approaches, such as those in the IASB's IFRS 7 (on financial instrument disclosure) and the US Securities and Exchange Commission's guidance on management's discussion and analysis (MD&A), may be sufficient to underpin disclosure improvements of the type discussed at the roundtable without the issuance of new disclosure requirements, but greater attention needs to be paid to address user needs for information about emerging risks.

- *Views of regulators and accounting standard setters.* The IASB and FASB discussed their initiatives in recent years to enhance risk disclosures. These include IASB improvements in standards for disclosures about financial instrument risks and valuations, and about off-balance sheet exposures, and FASB enhancements in standards for disclosures about credit risk, valuations and off-balance sheet risks. The two Boards have issued converged standards for improved disclosures about the gross and net exposures associated with derivatives and certain other financial instruments.

  Regulators generally acknowledged some recent improvements in risk disclosure practices but they shared the view that further improvement would be useful to enhance transparency. Securities regulators noted the benefits of

19 See press release and roundtable summary at www.financialstabilityboard.org/press/pr_120320.pdf.

regulators and firms reaching out to key stakeholders about disclosure issues and the importance of monitoring information discussed during senior management calls with analysts and the related presentations, which could provide insights into ways to improve financial report disclosures. They noted, however, that this required significant resources. The Financial Policy Committee of the Bank of England has encouraged improvements in the quality of disclosures as indicated the Bank's Financial Stability Reports in June and December 2011.

– *The role of auditors in risk disclosures.* External auditors are currently required to consider the risk of material misstatement of the financial statements in planning and performing the audit. Where the applicable accounting framework requires disclosure in the financial statements of information relating to risk, the auditor is required to audit that disclosure. The auditor's responsibility for disclosures in documents accompanying the financial statements – such as those in MD&A or the financial review section of financial reports – is generally limited to considering whether it is materially inconsistent with the audited financial statements or a material misstatement of fact. Auditors' roles are also limited with respect to disclosures in interim financial reports. Generally, other risk disclosures, such as those in presentations to investors and analysts or on a firm's websites, are not subject to external auditor's review.

  Audit regulators and standard setters summarized their recent guidance which included (i) alerts to auditors for assessing and responding to the risk of material financial statement misstatement in this difficult economic environment and (ii) consultative documents to explore possible improvements in auditor reporting and/or changes in the role of the external auditor for disclosures outside the financial statements (e.g., risk disclosures in MD&A). They are considering ways of expanding the scope of risk-related reporting responsibilities through consultative documents issued in 2011 and further work planned for 2012. Challenges remain in areas such as auditability of forward-looking statements, application of materiality concepts, and going concern assessments.

Investors and analysts stressed that disclosure that enhances the transparency of risks and risk management practices helps to build confidence in the firm's management, which can be particularly important to attract debt and equity investors. However, they argued that still many financial firms provide only minimal risk disclosures or obscure important information in voluminous disclosures that are not relevant or prioritized. Many participants encouraged that disclosure on past risks no longer of key importance should be allowed to be phased out, to ensure more relevant disclosure and avoid unnecessary reporting burden.

Enhancements discussed. Given the current financial market environment, participants expressed the view that enhanced qualitative and quantitative disclosure is particularly important in the following areas:

– *Information on governance and risk management strategies.* Investors requested better qualitative disclosures about governance, risk management oversight and related controls, and qualitative and quantitative disclosures about risk management practices, risk exposures and remuneration. Banking and insurance representatives noted the relevance of information about a financial

institution's risk appetite and that risk disclosures would be most relevant if they were consistent with information used internally for risk management purposes. Disclosure should be put in the context of the financial institution's business model to facilitate market understanding of risk management practices.

– *Summary disclosure and benefits of achieving comparability.* Participants agreed that risk disclosure should be timely, clear, prioritized, consistent and comparable, as highlighted by a recent survey of financial report users. Many analysts recommended more use of executive summaries of the key risk categories, which should include key metrics on entity-wide risk exposure and risk management effectiveness. Disclosures should better differentiate market risk components (e.g., interest rate, foreign currency and commodity risk as separate disclosure categories) and firms should avoid voluminous or boilerplate disclosures presented as a compliance exercise. Some supported the idea of standardized common disclosure templates to facilitate comparability across firms and jurisdictions and to aid aggregation and assessment of system-wide risks. Others pointed out that risk disclosure should be supported by qualitative information that provides management's context for measurements and important firm-specific considerations.

– *Credit risk.* While acknowledging that some banks have enhanced their disclosures in recent interim reports, participants encouraged improved disclosure about exposures to sovereign debt and to other financial institutions. In addition to the areas for potential enhanced credit risk disclosure raised in the FSB Report, including the disclosure of renegotiated loans for troubled borrowers, participants discussed other areas where enhanced risk disclosure could be useful, such as: (i) expected credit losses for impaired financial assets, (ii) counterparty exposures, (iii) derivatives, (iv) off-balance sheet and joint venture structures, and (v) risk concentrations.

– *Liquidity risk.* Participants noted the importance of transparency about liquidity and funding risks, including potentially additional disclosures about sensitivity analyses, sources and volume of liquidity buffers, and maturity tables including contingent lending commitments. Given the increasing role of collateral, participants shared the view that the degree of asset encumbrance should be disclosed at a reasonable interim frequency as well as annually. Some mentioned the importance of addressing the liquidity of collateral and the extent of its use and residual availability.

– *Capital adequacy and risk weighted assets (RWAs).* Participants said that disclosures on capital planning (including the ability of firms to transfer capital across borders) were important. Further disclosure about RWAs and their calculation methods would be helpful. Investors noted as a positive development that some banks had started to disclose their regulatory leverage ratios voluntarily.

– *Pillar 3 disclosure.* Participants indicated that the usefulness of Pillar 3 disclosures was hampered by difficulties in reconciling the unaudited Pillar 3 information to the audited financial statements of firms. Participants generally supported more integrated presentation which would, for example, better link and

allow navigation between the Pillar 3 and financial report (e.g., IFRS 7) risk disclosures, align the timing of their publication, and achieve more comparability across jurisdictions and banks. In addition, some noted as important that liquidity information was included in the Pillar 3 framework, as set forth in the Basel Committee's current plans.

– *Scenario and sensitivity analyses.* Some participants expressed their desire that the results of stress tests should be disclosed in financial reports, possibly with an indication as to whether the results are reviewed by external auditors. Care should be taken to properly interpret stress test results and summaries information in a manner useful to investors (e.g., using the impacts on earnings and capital of a certain change in interest rates, providing relevant information about non-linearity).

The roundtable showed the value of robust exchanges on shortcomings in disclosures among a wide range of private sector and public sector stakeholders. The full range of participants agreed that it would be important for investors, financial institutions and auditors to develop principles and formats for better risk disclosures going forward, with input from standard setters and regulators, as recommended in the FSB Report. Participants noted that these principles and leading practice disclosures should be broad in scope to avoid disclosure arbitrage among various market participants.

However, some felt that the private sector would not initially be able to carry forward this work on its own. Some called for more proactive involvement of the official sector under the current stressed situations where voluntary risk disclosure initiated by some in the private sector alone might not be sufficient to restore confidence quickly. Many expressed the view that the FSB should continue to help encourage and facilitate this work, perhaps by conducting another roundtable in 2012 and prompting a task force of investors, analysts, rating agencies, financial institutions, and auditors, with input from standard setters and regulators, to take forward this work.

FSB next steps in its risk disclosure initiative

Taking account of the views expressed at the December 2011 FSB roundtable and the recommendations set forth in a March 2011 FSB report on risk disclosures, the FSB announced in March 2012 the following next steps:

– The FSB will facilitate the formation of a task force to develop principles for improved disclosures based on current market conditions and risks, including ways to enhance the comparability of disclosures. The task force will involve investors, financial institutions, and external auditors and will be requested to develop proposed principles later this year for implementation in connection with end-year 2012 annual reports. The task force is expected to commence its activities in May 2012.

– The task force will be encouraged to have dialogue with standard-setting bodies, such as IOSCO, BCBS, IAIS, the IASB, the U.S. FASB and the IAASB, at key stages as it develops its recommendations and to report to the FSB.

– The FSB will also ask the task force to identify leading practice risk disclosures presented in annual reports for end-year 2011 based on broad risk areas such as those identified in the summary of the roundtable. The task force would be asked to report on these leading practice disclosures to the FSB in 2012.

– The FSB will consider holding another international roundtable in late 2012 to facilitate further discussion by investors, financial institutions, auditors, standard setters, regulators and supervisors on market conditions and risks at that time and the progress toward improving the transparency of risks and risk management through relevant disclosures.

As the March 2011 FSB report noted, should the follow-up actions by the private sector not result in sufficient progress in this area, the appropriate international standard-setting bodies will be asked to take forward work to consider principles.

In May 2012, the FSB announced that the new private sector task force – called the Enhanced Disclosure Task Force – has been established and the FSB public statement provided information about the co-chairs and other members of the task force. Mark Carney, Chairman, FSB, welcomed the formation of the Enhanced Disclosure Task Force. He added "The FSB supports these efforts which, together with the activities of standard setters, are expected to result in improved risk disclosure practices by financial institutions that will provide timely and useful information to investors."[20]

6 Conclusion

The FSB and its predecessor, the FSF, have encouraged improvements in the transparency of financial institutions and this article has summarized key initiatives in this respect, with a focus on those since 2008. These include calls for actions by market participants, standards setters, supervisors and regulators in a number of broad areas; namely:

– Convergence to improved standards by the IASB and FASB;

– Risk disclosure by market participants starting in 2008 about structured credit products, subprime exposures and SPEs;

– Off-balance sheet entities;

– Valuation;

– Transparency in securitization processes and markets;

– Enhanced external audit practices; and

– A joint private sector initiative to improve risk disclosure practices.

There has been a good deal of progress toward improved standards and practices. The FSB's thematic review of risk disclosure practices found that risk disclosure by financial institutions had improved following the FSF's 2008 recommendations. In addition, the IASB and FASB are making progress on projects to improve and converge their standards on financial instruments, including a joint expected loss impairment/provisioning approach and a more converged approach to classification and measurement. Important improvements to their standards on financial instruments, valuation, and off-balance sheet entities were finalised in 2011.

The more recent initiatives on external audit and joint private sector work on better risk disclosure principles and practices are aimed at further enhancements in practices beginning within the next year.

20 The FSB press release can be seen at www.financialstabilityboard.org/press/pr_120510.pdf.

Enhanced dialogue between regulators, standard setters and industry is very important. The FSB encourages such dialogue in a manner that respects the independence of the standard setting bodies. This dialogue with key stakeholders and respect for the independence of standard setters are critically important in achieving improved global standards and their sound, high quality implementation across jurisdictions and the financial services industry. The FSB will continue to encourage improved standards and practices and monitor progress as part of its initiatives to enhance transparency.

HACIA MERCADOS SECUNDARIOS DE TITULIZACIÓN LÍQUIDOS Y EFICIENTES

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Durante la década previa al inicio de la crisis, la titulización se convirtió en una importante fuente de financiación que permitió al sistema financiero la obtención recurrente de fondos con los que mantener la expansión de la actividad crediticia. No obstante, el rápido crecimiento de esta actividad conllevó una serie de riesgos que terminaron afectando al conjunto de la economía. Uno de los aspectos que pudo amplificar los efectos de la crisis (especialmente, en sus fases iniciales) y facilitar la trasmisión de las tensiones entre los diferentes mercados fue el escaso grado de desarrollo del mercado secundario de titulización. Esta carencia limitó las posibilidades de formar precios fiables para estos productos y dar así a los inversores, en una situación financiera más vulnerable, una posible salida ordenada para sus exposiciones en estos productos. En este contexto, el presente artículo subraya la necesidad de desarrollar mercados secundarios líquidos y eficientes como un elemento esencial en cualquier proceso de reestablecimiento sólido y sostenible de la titulización.

1 Introducción

El reconocimiento por parte de varias entidades financieras de sus dificultades para obtener un valor de mercado de algunos productos de titulización vinculados a hipotecas *subprime* estadounidenses fue el detonante, en agosto de 2007, de la actual crisis financiera. Progresivamente, los problemas de iliquidez y riesgo de crédito, inicialmente identificados en un segmento del mercado de titulizaciones hipotecarias muy concreto, se extendieron a otros ámbitos del sistema financiero. De este modo, caben pocas dudas de que la titulización introdujo en el sistema financiero una forma de riesgo sistémico que ni la industria, ni los mercados, ni las autoridades reguladoras pudieron identificar y corregir con suficiente antelación.

En los últimos años, varios trabajos han señalado muchos aspectos de la titulización que podrían haber sido los causantes de ese desequilibrio estructural [véase, por ejemplo, Joint Forum (2011)]. Entre estos factores causantes destacan la posible falta de incentivos por parte de los originadores para ejercer un control suficientemente riguroso de la calidad de los activos titulizados, la escasa transparencia en el funcionamiento de las estructuras de titulización y en la evolución de las carteras de derechos de crédito subyacentes, y la falta de información suficiente en cuanto a la identificación y localización de los riesgos reales de este tipo de operaciones.

Sin embargo, el comportamiento de los mercados secundarios para este tipo de valores en las primeras etapas de la crisis ha sido escasamente analizado, y ello a pesar de que este aspecto cobra una especial relevancia cuando se trata de comprender cómo la titulización actuó de mecanismo transmisor del riesgo al conjunto del sistema financiero en dicho período. En concreto, la falta de un mercado secundario líquido para los valores de titulización que permitiese la formación de precios de mercado suficientemente informativos y fiables, unida a la complejidad característica de estos valores, fue una de las principales causas de las turbulencias que afectaron inicialmente a los balances de los bancos que mantenían alguna exposición en este tipo de productos y de las distorsiones en el funcionamiento de otros mercados, como el de los bonos corporativos.

El presente artículo analiza el papel desempeñado por los mercados secundarios de valores de titulización en la actual crisis financiera y subraya la necesidad de avanzar hacia mercados más líquidos y eficientes para este tipo de valores. Con este objetivo, el documento

se ha dividido en las siguientes secciones. En el apartado segundo se describe el período de crecimiento de la titulización. En el tercero se analizan el papel de la titulización durante las distintas etapas de la crisis y las repercusiones que ha tenido su declive en otros sectores financieros. En el apartado cuarto se describen los principales problemas asociados a la titulización y las medidas tomadas hasta el momento para corregirlos. El quinto apartado se centra en la necesidad de conseguir mercados secundarios eficientes para estos valores y describe cómo algunas de las iniciativas institucionales y privadas puestas en marcha pueden contribuir a este objetivo. El documento se cierra con un apartado final de conclusiones.

2 La titulización antes de la crisis *subprime*

2.1 EVOLUCIÓN DE LAS PRINCIPALES MAGNITUDES

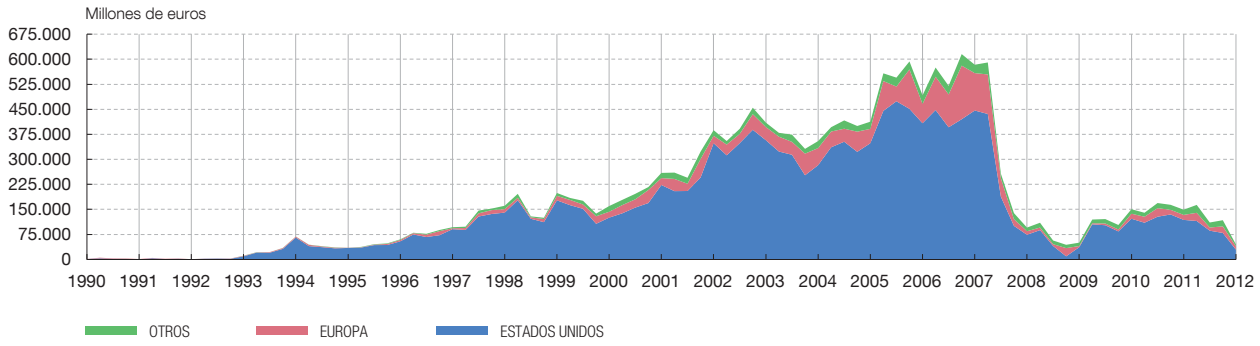
El desarrollo de los mercados de titulización comenzó en Estados Unidos en la década de 1990, siendo el período comprendido entre los años 2000 y 2007 el que registró las mayores tasas de crecimiento en las emisiones de estos productos (véase gráfico 1).

Desde finales de la última década del siglo pasado, el proceso de crecimiento de la titulización se vio impulsado por la disminución relativa del volumen de depósitos bancarios de los clientes particulares que, ante las bajas remuneraciones ofrecidas, buscaron instrumentos más rentables en los que colocar sus ahorros, al tiempo que ese entorno de bajos tipos de interés hacía aumentar la demanda de crédito. Para hacer frente a este desequilibrio entre la oferta y la demanda de fondos, el sector bancario buscó vías alternativas de financiación y encontró en los mercados mayoristas de capitales, especialmente en el de la titulización, una vía accesible para cubrir ese déficit. Así, entre los años 2000 y 2007 el volumen de activos titulizados en Estados Unidos aumentó en 1,5 veces, y se quintuplicó en Europa, aunque en este último caso partiendo de una cifra inicial muy baja.

La elevada aceptación de este tipo de valores en los mercados internacionales convirtió la titulización en una importante fuente de financiación para muchos países industrializados. Por ejemplo, el Fondo Monetario Internacional estima que en Estados Unidos, a mediados del año 2009, el 16 % del crédito hipotecario para la compra de vivienda estaba financiado por la titulización privada [véase FMI (2009)][1]. En Europa, por su parte, se estima que en 2006 aproximadamente el 10 % del mercado hipotecario residencial estaba financiado por titulizaciones [véase Comisión Europea (2006)]. En España, la importancia

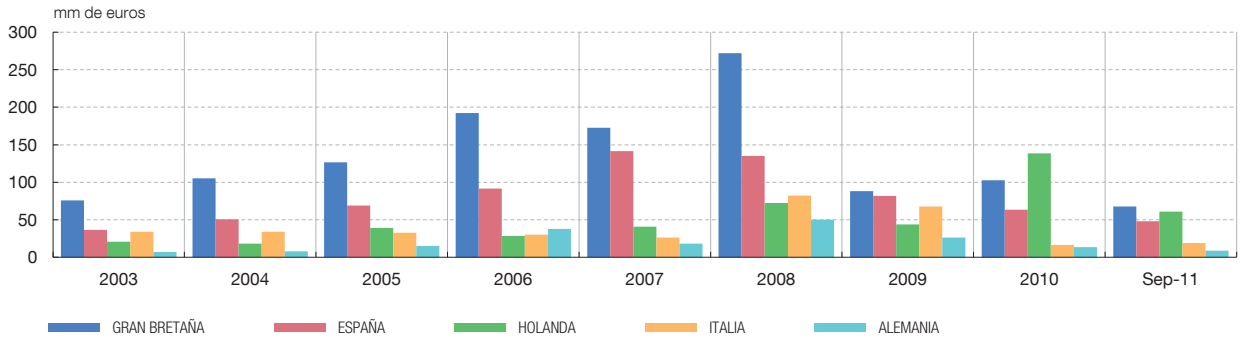
1 Tradicionalmente, en Estados Unidos las agencias gubernamentales (principalmente, la *Federal Home Loan Mortgage Corporation,* conocida como *Freddie Mac,* y la *Federal National Mortgage Association,* conocida como *Fannie Mae)* habían sido las promotoras de titulizaciones. Sin embargo, la titulización privada, es decir, toda aquella no realizada por alguna de las agencias gubernamentales, cobró relevancia entre 2004 y 2007, llegando a realizar, en alguno de esos años, más del 50 % de todas las emisiones de titulización dentro del mercado estadounidense.

EMISIONES GLOBALES DE TITULIZACIÓN: 1990-ENERO DE 2012 GRÁFICO 1



FUENTE: Dealogic.

EMISIONES DE TITULIZACIÓN EUROPEAS: 2003-SEPTIEMBRE DE 2011 GRÁFICO 2



FUENTES: AFME y Comisión Nacional del Mercado de Valores.

de la titulización en la actividad económica durante el último ciclo expansivo también estuvo especialmente ligada a los activos hipotecarios, lo que queda patente en el hecho de que los fondos de titulización hipotecaria representaban el 30,5 % del volumen vivo del crédito hipotecario a finales de 2008, cifra que se eleva hasta el 54,3 % si además se incluyen las titulizaciones de cédulas hipotecarias. El rápido crecimiento de los activos españoles titulizados durante esos años convirtió a la industria española de titulización en la segunda proveedora de este tipo de valores en el ámbito europeo (véase gráfico 2).

Aunque el sector de la vivienda fue el principal destinatario de los fondos obtenidos a partir de las titulizaciones, hubo otros sectores que también se beneficiaron del auge de este tipo de financiación estructurada, como fueron los del consumo y el préstamo empresarial.

2.2 EL PAPEL DE LA TITULIZACIÓN COMO MECANISMO DE GENERACIÓN DE ACTIVOS DE ALTA CALIDAD CREDITICIA

El crecimiento de la titulización a escala global se vio también impulsado por la relativa escasez de instrumentos de ahorro considerados como seguros, de manera que este tipo de financiación estructurada emergió como uno de los mecanismos más eficaces para generar nuevos activos de elevada calidad crediticia a gran escala[2].

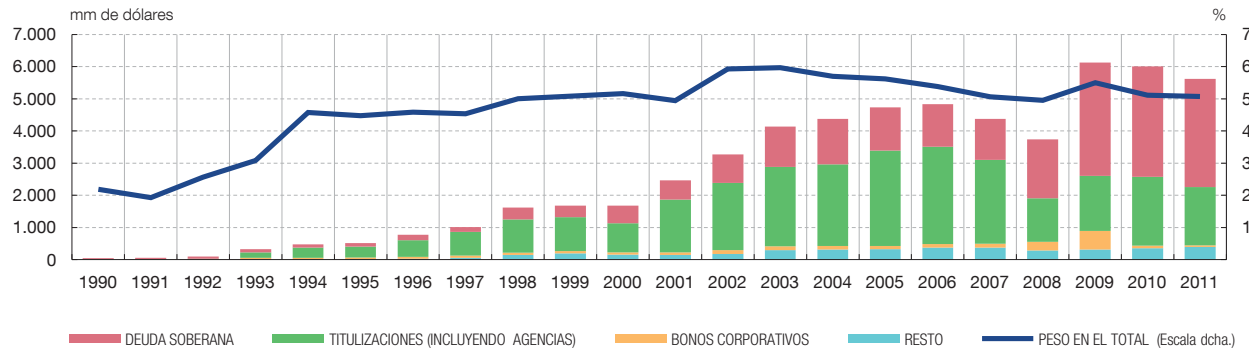
El gráfico 3 muestra el extraordinario crecimiento en la proporción de activos emitidos con calificación de triple-A sobre el total de emisiones de renta fija a largo plazo desde comienzos de la década de los noventa hasta 2009. En efecto, entre 1990 y 2006 los activos con la máxima calificación crediticia pasaron de suponer poco más del 20 % del total de emisiones de renta fija calificadas a representar casi el 55 % de las mismas. Analizando la contribución de los distintos activos al crecimiento total de los activos con calificación triple-A, puede comprobarse la importancia de la titulización en la producción de activos considerados seguros. En concreto, durante ese período, las titulizaciones dieron cuenta del 64 % del crecimiento de la emisión bruta de los instrumentos de renta fija a largo plazo con la máxima calificación crediticia, frente a un 27 % atribuible al crecimiento de la deuda pública. Asimismo, mientras que el porcentaje promedio de emisiones corporativas con triple-A, en relación con las emisiones corporativas totales, era del 9 %, esta proporción alcanzó el 18 % para las emisiones soberanas, elevándose hasta el 75 % en el caso de las titulizaciones.

Durante los años previos a la crisis, los bancos fueron los principales compradores privados de valores procedentes de titulizaciones. Las compañías de seguros, los fondos de inversión y los gestores de activos completarían la relación de inversores, pero dentro de un segundo orden. No obstante, durante ese período se observaron diferencias

2 Véanse CNMV (2010) y FMI (2012).

EMISIÓN BRUTA DE RENTA FIJA CON TRIPLE-A MUNDIAL

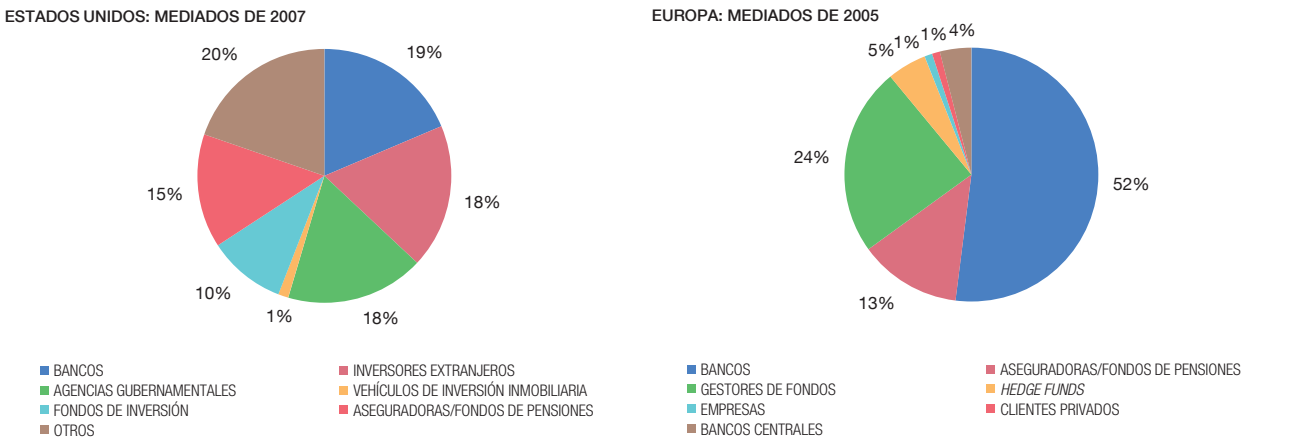
GRÁFICO 3



FUENTE: Dealogic.
NOTA: La categoría «resto» incluye cédulas hipotecarias, acciones preferentes y otros instrumentos de renta fija a largo plazo.

INVERSORES EN TITULIZACIONES

GRÁFICO 4



FUENTES: Fondo Monetario Internacional y Bond Market Association.

importantes en el abanico de inversores en función de las diferentes áreas económicas (véase gráfico 4). Así, por ejemplo, en Estados Unidos las agencias gubernamentales fueron no solo los principales originadores, sino también inversores muy activos en este tipo de productos, de manera que a finales del 2006 estas agencias contabilizaban en su haber el 21 % de todos los valores respaldados por hipotecas[3]. Por su parte, en el ámbito de la UE, los bancos ocuparon una posición predominante como inversores de este tipo de productos, destacando la relevancia del papel desempeñado por los vehículos emisores de pagarés respaldados por activos *(Asset-Backed Commercial Paper conduits,* ABCP). Estas estructuras fueron uno de los principales demandantes de valores de titulización, aunque resulta difícil conocer su exposición exacta, al tratarse de figuras económicas sometidas dentro del territorio europeo a legislaciones muy diferentes, no siempre bajo la supervisión de los organismos reguladores y que en muchas ocasiones se ubicaron fuera del perímetro de consolidación de sus originadores, normalmente bancos. Con todo, se estima que a finales de 2006 en la UE estos vehículos contabilizaban en torno al 20 % del total del saldo vivo de titulizaciones en ese momento[4].

3 De acuerdo con los datos publicados por Inside Mortgage Finance en su revista *Inside MBS and ABS,* del 16 de marzo de 2007.
4 Véase el informe «Moody's Special Investment Report 2006».

3 La crisis en los mercados de titulización

3.1 EL AGOTAMIENTO DEL CICLO EXPANSIVO

Después de más de una década de crecimiento continuado, a mediados de 2007 se produjo un cambio brusco en el entorno descrito antes, provocado fundamentalmente por dos hechos que desestabilizaron las bases del sistema financiero. Por una parte, el aumento de los tipos de interés a partir de 2004 por parte de la Reserva Federal estadounidense (entre 2004 y 2006 el tipo oficial pasó del 1 % al 5,25 %) y, por otra, el descenso sostenido del precio de la vivienda desde finales de 2006. Ambos factores provocaron, indirectamente, un rápido crecimiento de la morosidad y las ejecuciones hipotecarias. No cabe duda de que el tamaño alcanzado por el mercado *subprime* en Estados Unidos en los años que precedieron al inicio de la crisis contribuyó de forma clara a este hecho. En efecto, mientras que en 2002 el volumen de créditos *subprime* representaba el 7 % del mercado hipotecario de ese país, en 2007 la cifra era del 12,5 %.

Como cabría esperar, los bonos respaldados por los préstamos *subprime* fueron los primeros en empezar a notar los efectos de los impagos. Así, en junio de 2007 Bear Stearns tuvo que inyectar liquidez en dos *hedge funds* que mantenían posiciones en valores vinculados a hipotecas *subprime.* En julio de ese año, varios inversores en series de bonos con calificaciones bajas anunciaron pérdidas en sus posiciones y aumentó el número de vehículos que necesitaron de apoyo financiero para hacer frente a sus compromisos.

IKB Deutsche Industriebank (IKB) fue el primer banco europeo que reconoció estar sufriendo problemas financieros debido a hipotecas *subprime* estadounidenses, y en julio de 2007 esta entidad también anunció que debía proporcionar liquidez, por un importe de 3.500 millones de euros, a uno de sus vehículos de titulización con inversiones *subprime.* Unos meses más tarde, en febrero de 2008, el Gobierno alemán anunció que IKB necesitaba una inyección de liquidez de 1.500 millones de euros para evitar la quiebra. En agosto de 2007 BNP Paribas hizo pública la suspensión de tres fondos de inversión, al no poder calcular su valor liquidativo debido a la imposibilidad de obtener un valor de mercado de los activos en los que había invertido. En palabras de la propia entidad, «la desaparición de toda transacción en ciertos segmentos del mercado de la titulización en Estados Unidos lleva a una ausencia de precios de referencia y a una falta de liquidez casi total de los activos que forman parte de las carteras de los fondos, sea cual sea su calidad o *rating.* Esta situación ya no permite establecer una valoración justa de los activos subyacentes y así calcular un valor liquidativo para estos tres fondos» (nota de prensa de BNP, del 9 de agosto de 2007).

De manera simultánea, la incertidumbre que se generó sobre la calidad de los activos titulizados afectó de manera considerable al mercado de los ABCP, algunos de los cuales sufrieron una situación, prácticamente, de pánico inversor. Ello fue debido al desfase en los vencimientos de activos y pasivos con que operaban estas estructuras, para las que una de sus principales fuentes de ingresos era arbitrar el diferencial entre los activos a largo plazo —en su mayoría, valores de titulización que mantenían en sus carteras— y los pasivos a corto plazo, los ABCP, que emitían para financiar la compra de dichos activos. Dado que en la mayoría de los casos estos vehículos no llevaban a cabo una gestión activa de sus carteras, se limitaban a renovar los pasivos a medida que se producía su vencimiento. Cuando los tenedores de ABCP comenzaron a dudar de la capacidad de repago de estos valores, respaldados por valores de titulización en algunos casos vinculados a hipotecas *subprime,* dejaron de renovar sus inversiones al vencimiento abandonando los vehículos con dificultades para hacer frente al pago del resto de los reembolsos pendientes. Sin embargo, fueron pocos los inversores que incurrieron en pérdidas en ese momento, dado que la mayoría de los vehículos tenían garantías de crédito o mejoras crediticias concedidas por bancos, normalmente los promotores de los vehículos, para hacer estas estructuras más atractivas. En conjunto, únicamente el 2,5 % de los ABCP en circulación

en julio de 2007 se clasificó como impagado en el período entre julio de 2007 y diciembre de 2008, siendo los bancos los que absorbieron la mayoría de esas pérdidas. Como resultado, el saldo vivo de ABCP en el mercado estadounidense se contrajo un 44 % en la segunda mitad del 2007 y un 80 % en el europeo[5].

Pero no fueron únicamente los vehículos emisores de ABCP la única forma de titulización que tuvo que ser rescatada debido a desequilibrios estructurales. Así, por ejemplo, se estima que, desde mediados de 2007, el 30 % de los valores de titulización respaldados por préstamos a particulares distintos de los préstamos hipotecarios y por deuda emitida por empresas (en adelante, por sus siglas en ingles CDO - *collaterized debt obligation)* fue transferido a los balances de los bancos originadores. De este modo, los bancos se convirtieron en los principales tenedores de valores procedentes de titulizaciones.

La consecuencia inmediata fue que la incertidumbre sobre la calidad crediticia de estos valores se convirtió en incertidumbre sobre la calidad crediticia de los bancos. El motivo fue que el sistema contable de los bancos, a diferencia del de la mayoría de los vehículos, exigía la incorporación de esos activos a valor de mercado[6]. Sin embargo, en ese momento no existía un mercado secundario líquido para estos valores, lo cual obligó a la banca a reconocer en sus balances activos con alto grado de deterioro. Esto, a su vez, hizo que las entidades bancarias incurriesen en mermas de capital inesperadas, reduciendo la confianza de los mercados en su solvencia y dificultando así el acceso de estas entidades a sus fuentes de financiación. Esto se vio reflejado en el aumento de los diferenciales de los mercados interbancarios, tanto estadounidenses como europeos, que fue más intenso en Estados Unidos debido, principalmente, a la mayor importancia relativa de la financiación basada en depósitos minoristas en el caso de la banca europea.

Simultáneamente, los mercados secundarios comenzaron a experimentar niveles crecientes de la volatilidad, en gran medida debido a una mayor consideración del riesgo en la formación de los precios en mercado, combinado con políticas de inversión más conservadoras por parte de los inversores, que comenzaron a deshacer sus posiciones con mayor riesgo. Todos estos factores generaron movimientos sustanciales de los precios, lo que provocó una elevada inestabilidad de los precios de muchos activos.

3.2 ILIQUIDEZ EN LOS MERCADOS DE TITULIZACIÓN Y CONTAGIO A OTROS MERCADOS

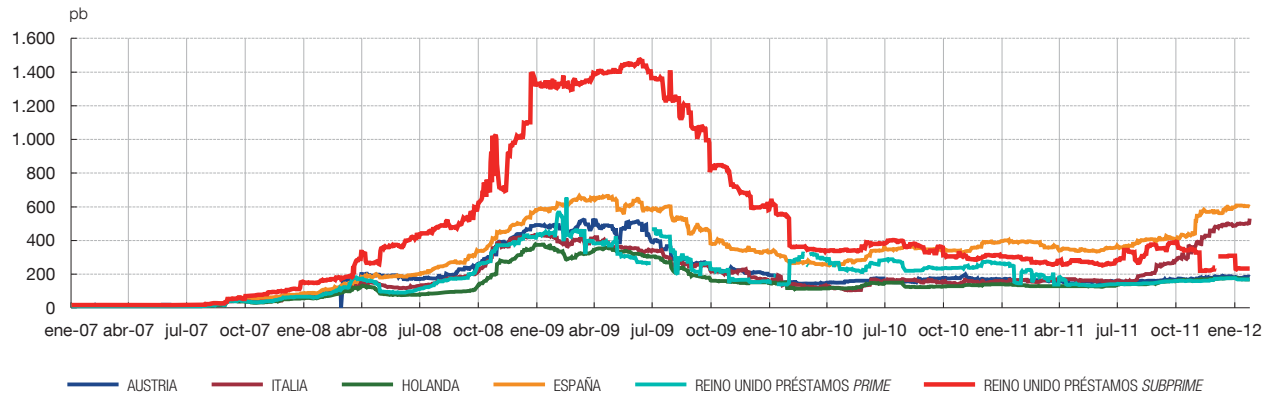
Como se ha señalado anteriormente, la titulización afectó en primera instancia al mercado interbancario. Sin embargo, en un segundo estadio de la crisis otros mercados se vieron asimismo afectados por los problemas de la titulización. En concreto, uno de los mercados financieros más afectados indirectamente fue el de los bonos corporativos.

En efecto, algunos fondos de inversión operaron como mecanismo de transmisión de las tensiones en los mercados de titulización a otros mercados. En particular, estas entidades adquirieron antes del inicio de la crisis importantes cantidades de bonos procedentes de titulizaciones, atraídas por su elevada rentabilidad. Una vez iniciadas las turbulencias financieras en 2007, muchos fondos tuvieron que hacer frente a dos problemas. Por un lado, no podían contar con sus carteras de titulización para obtener efectivo con el que afrontar los reembolsos ordinarios o anticipados que pudieran surgir, dado que no había un mercado secundario activo en el que vender estos productos. Por otro lado, los fondos que estaban obligados a mantener determinadas ratios de calidad crediticia en sus carteras se vieron

5 De acuerdo con los datos publicados por la Reserva Federal de Estados Unidos y AFME.

6 El valor de mercado puede calcularse a partir de valores tomados de mercados activos o mediante modelos de valoración en el caso de mercados inactivos o sin datos disponibles.

DIFERENCIALES PARA VALORES RMBS (a) CALIFICADOS AAA: ENERO DE 2009-ENERO DE 2012 GRÁFICO 5



FUENTE: Markit.

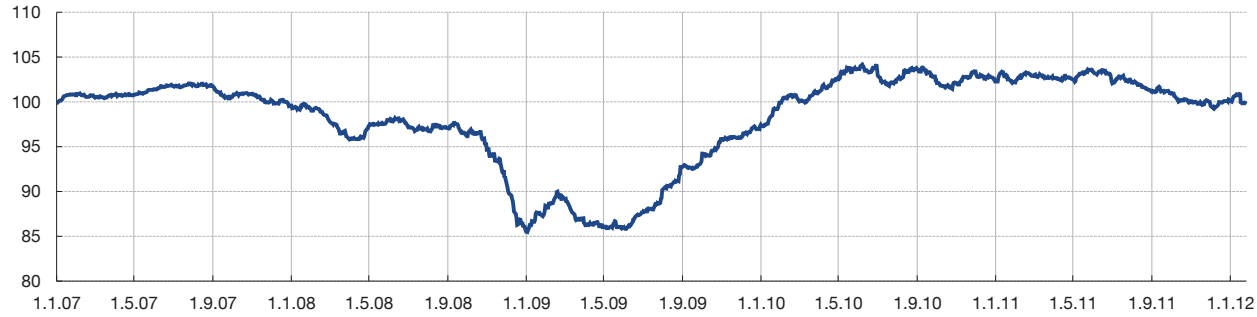
a *Residential Mortgage Backed Securities,* bonos de titulización respaldados por créditos hipotecarios para la adquisición de vivienda.

forzados a reequilibrar la composición de sus inversiones, demasiado expuestas en esos momentos a bonos de baja calidad, como consecuencia de la continuada rebaja de las calificaciones de los bonos de titulización. Incapaces de vender los activos deteriorados, tanto por la ausencia de compradores como por su reticencia a registrar en sus libros las importantes pérdidas que dichas ventas podrían llegar a ocasionarles, procedieron a vender en su lugar otros activos más líquidos, como los bonos corporativos. Por ejemplo, Manconi *et al.* (2010) señalan que, en el último trimestre de 2007, los fondos de inversión estadounidenses redujeron en un 15 % el volumen de bonos corporativos en sus carteras, mientras que las titulizaciones tan solo disminuyeron un 9 %. La presión vendedora en el mercado de bonos provocó un aumento del margen entre precios de compra y precios de venta, y contribuyó también a elevar sensiblemente la volatilidad de sus cotizaciones.

En este contexto, cabe cuestionarse por qué los mercados secundarios de titulización no funcionaron correctamente. En primer lugar, es necesario reconocer que la negociación de valores de titulización en el mercado siempre había sido muy moderada. En el momento en que comenzó la crisis, hay dos razones básicas por las que este mercado secundario dejó de funcionar. Por un lado, la escasez de capital limitó la capacidad de los agentes participantes en estos mercados para ejercer su papel de creadores de mercado y, por otro, muchos de los tenedores de titulizaciones consideraron que el precio de mercado era mucho menor que la rentabilidad que razonablemente podrían obtener si los mantenían hasta el vencimiento, por lo que se mostraron reacios a venderlos.

La consecuencia de todo ello fue una disminución generalizada de los volúmenes negociados en torno al 45 % en valores de titulización respaldados por préstamos hipotecarios y del 85 % para valores respaldados por préstamos para la compra de coches, con respecto a los volúmenes previos a la crisis [véase IOSCO (2010)]. En el ámbito europeo, el Comité Europeo de Reguladores de Valores (CESR, por sus siglas en inglés), precursor de la actual Autoridad Europea de Mercados y Valores (ESMA), estimó que el número de transacciones de mercado había pasado de una media de 250 operaciones a la semana antes de la crisis a situarse entre 50 y 100 durante la misma, muchas de ellas, además, calificadas como ventas forzadas [véase CESR (2009)]. En este escenario, los diferenciales en el mercado secundario aumentaron considerablemente (véase gráfico 5) y, aunque al inicio de la crisis hubo cierta reticencia a reducir en exceso las valoraciones por miedo a incentivar las ventas masivas, finalmente los precios sufrieron una caída drástica, alcanzando su punto más bajo a mediados de 2009 (véase gráfico 6).

EVOLUCIÓN DEL ÍNDICE MARKIT IBOXX EUROPE RMBS: ENERO DE 2007 -ENERO DE 2012 GRÁFICO 6



FUENTE: Markit.
El Markit iBoxx European RMBS Index está calculado diariamente por Markit a partir de los precios proporcionados por Markit European ABS Pricing Service, obtenidos gracias a las contribuciones de 20 creadores de mercado.

Desde entonces, el mercado secundario de valores de titulización ha experimentado una cierta recuperación, gracias a la estabilización de los diferenciales fijados en el mercado primario como consecuencia de los programas de ayuda especiales implementados por varios Gobiernos y bancos centrales. En todo caso, los mercados han establecido una clara diferencia entre los diferentes tipos de activos, demandando mayores rentabilidades a aquellos valores con peor comportamiento histórico, como las titulizaciones respaldadas por préstamos hipotecarios no residenciales (CMBS, por sus siglas en inglés), o a las operaciones originadas en países afectados por un mayor grado de incertidumbre económica.

3.3 LA ACTIVIDAD EMISORA DURANTE LOS AÑOS DE LA CRISIS FINANCIERA

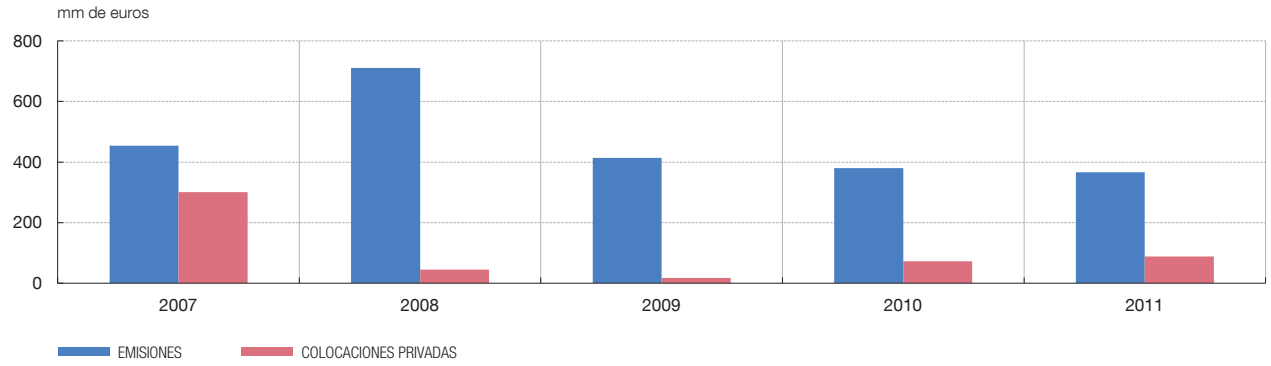
Otra de las consecuencias más visibles de la crisis en el ámbito de la titulización ha sido la práctica paralización del mercado de las emisiones a escala global (véase gráfico 1). Así, en Estados Unidos las colocaciones privadas de estos activos se redujeron muy sensiblemente, hasta representar únicamente el 12 % del volumen total de titulizaciones emitidas en 2011[7], quedando el mercado abastecido únicamente por las emisiones procedentes de las agencias gubernamentales. En Europa, por su parte, se ha observado una evolución diferente, registrándose un gran crecimiento de las emisiones de valores de titulización durante el 2008 para ir disminuyendo paulatinamente en los siguientes años. Sin embargo, las colocaciones entre inversores privados han sido, durante todos estos años, muy escasas (véase gráfico 7), debido a que los originadores, esencialmente entidades de crédito, han retenido los valores en sus balances para su utilización en programas públicos especiales de apoyo al sector financiero y como garantías en las operaciones de inyección de liquidez articuladas por los bancos centrales.

En este contexto, cabe señalar que las operaciones extraordinarias de apoyo al sistema financiero en Europa no incluían inicialmente entre sus objetivos la recuperación del mercado de las titulizaciones. Sin embargo, el modo en el cual se diseñaron muchas de estas operaciones convirtió la titulización, en algunos casos, en un instrumento útil para acceder a las mismas (véase gráfico 8). En particular, las titulizaciones cobraron una especial relevancia en la instrumentación de las medidas dirigidas a reducir el peso de los activos deteriorados en los balances bancarios y en los programas de inyección de liquidez.

Así, por ejemplo, en el Reino Unido, el Banco de Inglaterra puso en marcha en abril de 2008 el *Special Liquidity Scheme,* que permitía a las entidades financieras y a las sociedades constructoras intercambiar temporalmente con la autoridad monetaria algunos de sus

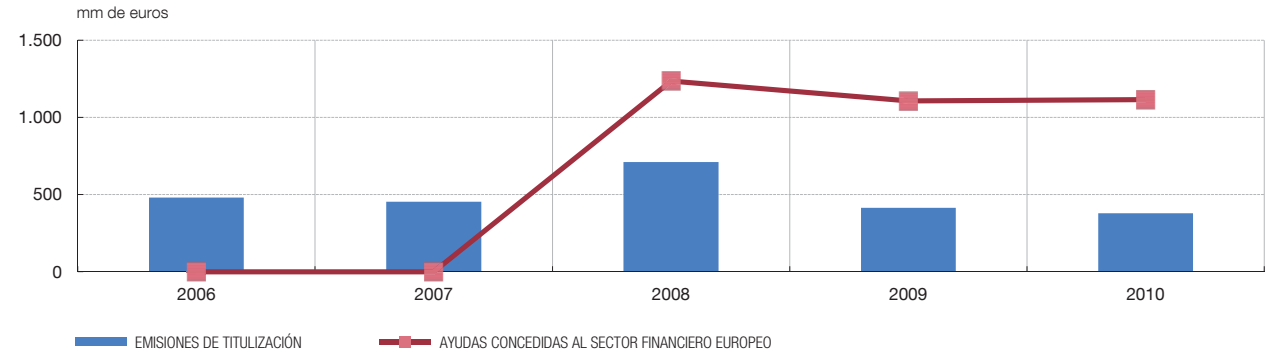
7 Datos hasta septiembre de 2011, publicados por la Association for Financial Markets in Europe (AFME). Durante los años 2005 y 2006 la titulización privada estadounidense suponía algo más del 50 % de todo el mercado.

COLOCACIONES PRIVADAS DE LAS EMISIONES EUROPEAS ENTRE 2007 Y 2011 GRÁFICO 7



FUENTES: AFME y Comisión Europea.

COMPARATIVA ENTRE LA EVOLUCIÓN DE LAS AYUDAS FINANCIERAS AL SISTEMA FINANCIERO EUROPEO Y LAS EMISIONES DE TITULIZACIÓN: 2006-2010 GRÁFICO 8



FUENTES: AFME y Comisión Europea.

activos ilíquidos, como valores respaldados por préstamos hipotecarios, por bonos del tesoro, con los cuales podrían financiarse en el mercado con mayor normalidad. De acuerdo con los datos publicados por la institución, al cierre del plazo para acudir a estas ayudas, el Banco de Inglaterra había prestado bonos del Tesoro por un valor nominal de 185 mm de libras esterlinas.

Por su parte, el Gobierno español constituyó en octubre de 2008 el Fondo de Adquisición de Activos Financieros, cuyo objetivo era apoyar la oferta de crédito destinado a la actividad productiva de las empresas y los particulares mediante la adquisición de activos financieros emitidos por entidades de crédito y fondos de titulización. El Fondo compró cédulas hipotecarias y bonos de titulización con la máxima calificación crediticia mediante un sistema de subastas que se llevaron a cabo a finales de 2008 y principios de 2009, por un importe total de 19.341 millones de euros.

Aunque su actuación no puede enmarcarse estrictamente dentro de ningún plan de rescate, lo cierto es que el Eurosistema ha venido desarrollando también durante estos tres últimos años un papel importante en la provisión de liquidez al sistema financiero europeo. Cabe destacar en este sentido las adquisiciones temporales de activos de entidades privadas y las operaciones de crédito con garantía de activos. El importe medio de los valores de titulización depositados en garantía en el Banco Central Europeo (BCE) ascendía a finales de 2008 a 1,1 billones de euros, lo que supuso el 9 % del total de sus operaciones durante dicho ejercicio. En 2009, este importe se incrementó hasta los 1,3 billones de

euros, el 10 % del total. En 2010 volvieron a depositarse en garantía valores de titulización por importe de 1,3 billones de euros, que ese año supusieron un 9 % del total.

3.4 LA DIVERGENCIA ENTRE EL PRECIO DE LAS TITULIZACIONES Y LA CALIDAD DE LOS ACTIVOS

La incertidumbre sobre el posible deterioro de las carteras de préstamos titulizadas y su impacto sobre las estructuras de titulización fueron factores que determinaron la paralización de este mercado. Los datos que se muestran en el cuadro 1 permiten comprobar que las series con mejor calificación han tenido un comportamiento estable durante los años que dura la crisis, mientras que, como cabría esperar, los valores con menores calificaciones han absorbido los impagos procedentes del deterioro de la calidad crediticia de particulares y corporaciones.

Un análisis más detallado sobre el comportamiento real de las carteras muestra que los niveles de impago se han distribuido de manera desigual entre los diferentes segmentos del mercado de la titulización y que, de manera general, el comportamiento de los valores emitidos en Europa ha sido comparativamente mejor que el de los estadounidenses. En concreto, el nivel de impago de la titulización europea desde que comenzó la crisis a mediados de 2007 hasta el segundo semestre de 2011 se estima en el 1,24 % del saldo titulizado[8], mientras que el de la estadounidense está en torno al 9,66 %. También los valores europeos con mejores calificaciones han mostrado mayor fortaleza. Así, a finales de 2011 tan solo el 0,95 % de los bonos europeos calificados con triple-A hubo de ser clasificado como impagado, y en ningún caso se trató de RMBS, frente al 7,03 % de las titulizaciones estadounidenses con la misma calificación. El cuadro 2 proporciona detalles adicionales sobre la distribución de los niveles de impago en ambas áreas económicas para el año 2010.

8 Según estudios realizados por Standard & Poor´s.

RATIOS GLOBALES DE IMPAGO DE LOS PRODUCTOS ESTRUCTURADOS: 2007-2010 **CUADRO 1**

Porcentaje

	2007	2008	2009	2010
AAA	0,0	0,5	0,3	0,3
Investment-grade	0,2	1,0	2,6	0,8
Speculative-grade	3,1	16,1	38,5	20,3
TOTAL	0,6	4,1	16,7	10,9

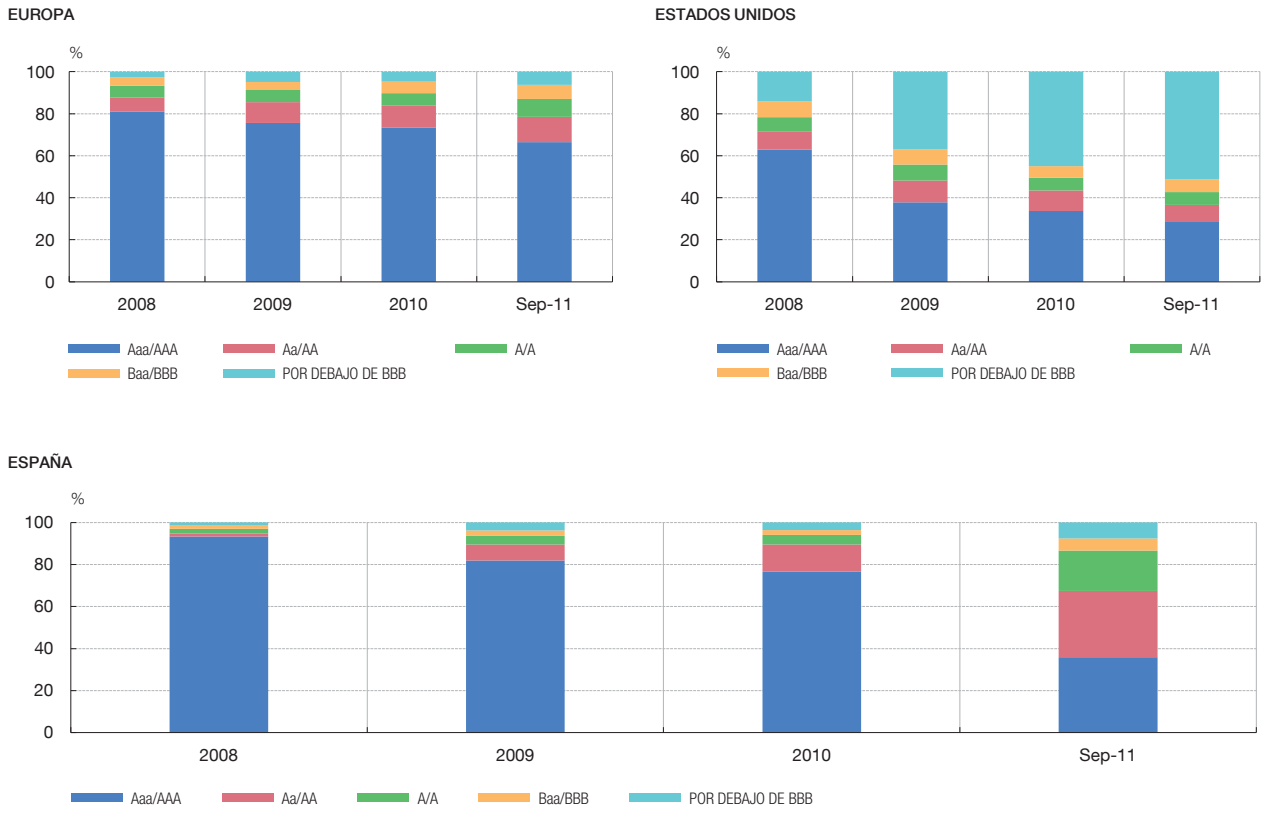
FUENTE: Standard & Poor´s, «Default Study: Global Structured Finance Default Study-1978-2010: Credit Trends Started to Improve in 2010, but U.S. RMBS faces Challenges».

ESTADOS UNIDOS FRENTE A EUROPA: RATIOS DE IMPAGO POR SEGMENTO DE TITULIZACIÓN (AÑO 2010) **CUADRO 2**

	Europa (%)	Estados Unidos (%)
ABS	0,51	0,61
CDO	3,20	4,90
CMBS	2,85	13,09
RMBS	0,73	17,39
Titulización sintética	0,27	0,40
Total global	10,9	

FUENTE: Standard & Poor´s, «Default Study: Global Structured Finance Default Study-1978-2010: Credit Trends Started to Improve in 2010, but U.S. RMBS faces Challenges».
NOTA: El segmento RMBS considera también las hipotecas *subprime*. En el apartado CDO se incluyen tanto CDO en efectivo como sintéticos, a valor de mercado y sobre fondos apalancados. CMBS incorpora Re-REMICS y CRE CDO cuyos subyacentes son locales comerciales o CMBS.

EVOLUCIÓN DE LOS *RATINGS* OTORGADOS A LAS TITULIZACIONES: 2008- 2011 GRÁFICO 9



FUENTE: Dealogic.

En el caso concreto de España, la evolución de los valores de titulización ha sido semejante a la del resto de los valores europeos, con mejor comportamiento, incluso, en algunos segmentos. Así, la tasa total de impago de los bonos de titulización española contabilizada a finales de 2011 fue del 0,09 %[9]. Las carteras con peor comportamiento fueron las de préstamos para consumo y automoción, con una tasa de fallidos del 2,62 %, mientras que únicamente el 0,29 % de los préstamos para la compra de vivienda titulizados había sido clasificado como fallido[10].

A pesar del nivel relativamente bajo de impagos en la titulización europea y española, a raíz de la crisis se ha producido un deterioro en la calidad crediticia de las carteras titulizadas, lo cual ha quedado reflejado en la evolución de los *ratings* para estos productos (véase gráfico 9).

No obstante, además de un cierto deterioro crediticio de los activos subyacentes, existen otros factores que han afectado a la evolución negativa de las calificaciones crediticias de este tipo de productos, especialmente en el período más reciente. En este sentido, cabe mencionar los cambios metodológicos introducidos por las agencias de *rating* en sus procedimientos de valoración a raíz de la crisis económica o la rebaja de las calificaciones crediticias soberanas a numerosas instituciones financieras, habituales proveedoras de servicios a los fondos de titulización. Todo ello ha motivado, en cierta medida, la evolución a la baja de los *ratings* de los valores de titulización en los últimos años.

9 Tasa de impago de principal e intereses de bonos de titulización sobre los importes pendientes de reembolso.
10 A finales de 2011 los derechos de crédito hipotecarios para la compra de vivienda representaban el 72 % del saldo vivo de las carteras de activos titulizados.

4 Desarrollos normativos recientes en el ámbito de la titulización

La paralización del mercado de la titulización y la transmisión de las tensiones antes descritas desde esta actividad a través de toda la cadena del sector financiero pusieron al descubierto, en algunos casos, deficiencias importantes en la gestión del crédito por parte de las entidades en las prácticas titulizadoras, en los servicios de calificación del crédito y en el comportamiento de los inversores. A continuación se detallan algunas de estas áreas de vulnerabilidad, así como los principales desarrollos normativos adoptados, o en curso de elaboración o aplicación, que diversas autoridades han impulsado recientemente para atajar estas deficiencias.

CONFLICTOS DE INTERÉS

Una de las ideas sobre las que más se ha debatido ha sido la presencia de conflictos de interés a lo largo de la cadena de la titulización y sus potenciales efectos negativos sobre la calidad de estos activos[11]. En concreto, se han identificado tres problemas importantes en este ámbito: el deterioro de los niveles de calidad en la creación y supervisión de los préstamos por parte de los originadores, la existencia de información asimétrica entre los diferentes agentes que participan en el proceso y la actuación de las agencias de *rating* en la titulización.

DETERIORO DE LOS NIVELES DE CALIDAD EN LA CREACIÓN Y SUPERVISIÓN DE LOS PARTES DE LOS ORIGINADORES

Varios estudios recientes han documentado cómo la utilización generalizada del modelo «originar para distribuir», principalmente en Estados Unidos, redujo el nivel de exigencia en los procedimientos de aprobación y supervisión de los prestamistas, lo cual podría haber llevado a una disminución en la calidad de los préstamos titulizados antes de la crisis[12]. De esta manera, los originadores de préstamos estarían ahorrándose los costes de obtener una mayor información sobre la calidad de los activos titulizados, puesto que no obtendrían ningún beneficio futuro de dicha información, ya que esos activos serían vendidos posteriormente a través de su titulización[13].

Una de las posibles soluciones para hacer frente a este problema, y que ha recibido un elevado grado de atención a raíz de la crisis, consiste en involucrar de manera más directa a los originadores en sus propias operaciones de titulización, obligándoles a retener una parte del riesgo de estas operaciones. La declaración final emitida por el G 20 en la Cumbre de Pittsburgh, en septiembre de 2009, recomendaba el establecimiento de umbrales mínimos de retención para los originadores de estos productos. En un informe publicado por IOSCO en marzo de 2011 [véase IOSCO (2011)] se señala que la mayoría de las jurisdicciones ha implementado o está considerando implementar requisitos de retención en el ámbito de la titulización.

En Estados Unidos, la Dodd-Frank Wall Street Reform and Consumer Protection Act (en adelante, Ley Dodd-Frank) establece las líneas generales de los requerimientos de retención del riesgo y deja a la Securities Exchange Commission (SEC) y a las diferentes agencias bancarias federales el desarrollo de las reglas concretas dentro de sus respectivos ámbitos de actuación. En Europa, los requerimientos de retención para originadores de titulizaciones que sean entidades de crédito han sido introducidos mediante una modificación de la Directiva de Adecuación de Capital, conocida como CRD II, en su artículo 122(a)[14]. En síntesis, la nueva normativa europea establece que los bancos no puedan invertir en titulizaciones a menos que los originadores de las mismas retengan, como

11 Ashcraft y Schuermann (2008) realizan una descripción exhaustiva de los diferentes agentes participantes en el proceso de titulizar y estudian los potenciales conflictos de interés entre ellos.
12 Keys *et al.* (2010), Purnanandam (2010) o Kara *et al.* (2010).
13 Véanse también Bubb y Kaufman (2009) o Bhardwaj y Sengupta (2009).
14 Directiva (CE) n.º 111/2009, de 16 de septiembre de 2009.

mínimo, el 5 % del riesgo. Además, medidas similares a las recogidas en el artículo 122(a) de la Directiva de Adecuación del Capital para entidades de crédito se han incluido en otros desarrollos normativos europeos, como la Directiva (CE) n.º 138/2009, sobre el seguro de vida, el acceso a la actividad de seguro y reaseguro y su ejercicio (Solvencia II), y la Directiva para gestores de inversión alternativos. De esta manera se pretende crear un marco regulatorio homogéneo en el ámbito europeo para todo el abanico de inversores potenciales en este tipo de productos y evitar la posibilidad de arbitraje regulatorio.

EXISTENCIA DE INFORMACIÓN ASIMÉTRICA

La existencia de información asimétrica entre los diferentes agentes involucrados en una titulización ha sido ampliamente señalada como uno de los principales problemas asociados a este tipo de operaciones. Las prácticas del tipo *cherry picking* entre originadores y promotores de titulizaciones podrían haber contribuido a sembrar la duda en el mercado sobre la calidad de las carteras de activos subyacentes, alimentada, posteriormente, por la escasa información disponible al respecto a lo largo de la vida de los valores emitidos[15]. Por otra parte, la dificultad para entender el funcionamiento de estas estructuras, que en muchos casos estaban diseñadas específicamente para un inversor, junto con la escasa información aprovechable acerca de las mismas, motivó que los inversores recurriesen sistemáticamente a los análisis efectuados por las agencias de *rating*.

Desde diferentes ámbitos se han llevado a cabo importantes esfuerzos para mejorar la información puesta a disposición de los inversores y el mercado, tanto en el momento de la creación de los valores como de manera continuada durante la vida de los mismos. En este sentido, IOSCO (2010) y el Joint Forum (2011), entre otros, han defendido los beneficios de una mayor transparencia y la necesidad de mayor y mejor información en relación con los mercados de titulización, de manera que los inversores sean capaces de llevar a cabo sus propias valoraciones, disminuyendo así su excesiva dependencia de las agencias de *rating.*

En Estados Unidos, la Ley Dodd-Frank establece varias directrices generales en este sentido. En el ámbito europeo, se han puesto en marcha varias iniciativas. Así, a través de la anteriormente mencionada CRD II, se han introducido nuevos requisitos de disponibilidad de información para originadores o promotores de titulizaciones que sean entidades de depósito. En paralelo, algunas jurisdicciones europeas han desarrollado normativas complementarias para aumentar la transparencia en este ámbito; así, por ejemplo, en España, la Comisión Nacional del Mercado de Valores estableció en 2009 requerimientos de información pública periódica[16], con formato estandarizado y envío electrónico, para los fondos de titulización.

Otro de los trabajos puestos en marcha recientemente es la *loan-level initiative,* que el BCE está desarrollando con el objetivo de promover el establecimiento de una central de registro de datos europeos para el procesamiento, verificación y transmisión de datos de los préstamos que respaldan valores de titulización y que son utilizados como colaterales en las operaciones de las instituciones financieras con este organismo. Está previsto que este sistema electrónico de información comience a funcionar en el tercer trimestre de 2012. Por su parte, el Banco de Inglaterra también está en proceso de implementar requerimientos similares de información, es decir, a escala individualizada, de los préstamos vinculados a activos elegibles como colaterales en operaciones con esta institución.

15 Esta idea ha sido tratada en trabajos académicos como los realizados por Elul (2009) o Berndt y Gupta (2009).

16 Circular 2/2009, de 25 de marzo, de la Comisión Nacional del Mercado de Valores, modificada posteriormente por la Circular 4/2010.

AGENCIAS DE *RATING*

El marco legal y las prácticas del mercado antes de la crisis conformaron un sistema estrechamente vinculado y muy dependiente de la actuación de las agencias de *rating*[17]. Así, en el ámbito normativo hay tres áreas principales en las que los reguladores han identificado una dependencia excesiva del mercado con respecto a las calificaciones crediticias. El primero se refiere al uso de las calificaciones externas para el cálculo de requerimientos de capital y límites regulatorios[18]. El segundo está relacionado con el cumplimiento de requerimientos normativos vinculados a la consecución de determinados niveles de calidad crediticia por parte de fondos de inversión, fondos de pensiones y compañías de seguros. Y, por último, el tercero alude a la implementación para algunas instituciones financieras de políticas de inversión asociadas al cumplimiento de niveles mínimos de *rating* en sus carteras.

Con respecto a las prácticas de mercado habituales en los años previos a la crisis, el éxito o el fracaso de las colocaciones de valores en los mercados internacionales dependían, en gran medida, de los informes emitidos por las agencias, ya que los inversores utilizaban sus calificaciones como punto de partida en sus decisiones de inversión, dedicando pocos recursos, en general, al análisis propio. En este entorno, las bruscas rebajas en las valoraciones de las titulizaciones que tuvieron lugar al comienzo de la crisis plantearon una serie de interrogantes acerca de la calidad de las mismas[19]. En concreto, entre los problemas más relevantes detectados en este ámbito destacan la posibilidad de conflicto de intereses en el doble papel de las agencias de *rating,* como oferentes de servicios de asesoramiento o consultoría a los emisores de titulizaciones, por un lado, y como valoradores, por otro; el riesgo de selección estratégica de las calificaciones por parte de los emisores *(rating shopping)* con el objetivo de lograr la mejor calificación posible; la reducida experiencia en la calificación de titulizaciones, especialmente aquellas más complejas para las que no existían registros estadísticos lo suficientemente representativos sobre su comportamiento histórico, y la falta de información relativa a algunos aspectos clave, como la metodología de valoración, el significado de las calificaciones o la profundidad y calidad del análisis de riesgos de los activos subyacentes.

Por ello, el Comité de Estabilidad Financiera (FSB, por sus siglas en inglés) ha recomendado una reducción progresiva de la dependencia de organismos públicos e instituciones financieras de su dependencia en las calificaciones emitidas por las agencias de *rating* y, actualmente, muchos países están trabajando en este sentido[20].

5 El papel de la titulización en el escenario postcrisis: el papel de los mercados secundarios

En la actualidad, la mayoría de instituciones y organismos ha reconocido los beneficios de la titulización y la necesidad de recuperar esta forma de financiación para bancos y otras entidades financieras. Aunque la inexistencia de un mercado secundario para las titulizaciones durante la crisis no ha sido considerada como una causa de primer orden del colapso de esta industria, los estudios realizados por diferentes instituciones coinciden en que la existencia de un mercado transparente y eficiente para este tipo de valores es uno de los

17 El Joint Forum realizó un estudio sobre el papel que desempeñan las agencias de *rating* en las diferentes jurisdicciones y fue publicado en junio del 2009 bajo el título *Stocktaking on the use of credit ratings.*

18 En el ámbito europeo, es especialmente relevante para en método contable *standard* y para las titulizaciones.

19 Ashcraft *et al.* (2009) o Mathis *et al.* (2009).

20 La sección 939A de la Ley Dodd-Frank requiere a las agencias federales revisar la normativa vigente para determinar el grado de dependencia en las calificaciones emitidas por las agencias de *rating* y recomienda reducirla, en la medida de lo posible. En esa misma línea, la Comisión Europea publicó en noviembre de 2011 una propuesta de directiva para modificar las disposiciones legales sobre determinados organismos de inversión colectiva en valores mobiliarios y gestores de fondos de inversión alternativos en lo que se refiere a la dependencia excesiva de las agencias de *rating.*

factores fundamentales para lograr la recuperación de esta actividad[21]. En este ámbito, como se analiza en detalle a continuación, los esfuerzos se están centrando en dos áreas principales: la simplificación y estandarización de los productos, y la transparencia post-negociación.

SIMPLIFICACIÓN Y ESTANDARIZACIÓN DE LOS VALORES DE TITULIZACIÓN

Las titulizaciones son productos relativamente complejos, con un alto grado de heterogeneidad en sus estructuras, en la composición de las carteras subyacentes y en multitud de aspectos relacionados con su comportamiento y pago de flujos de efectivo. En Europa, además, siguen existiendo diferencias importantes ente las regulaciones y las prácticas de mercado a escala nacional. El grado de heterogeneidad que esto genera ha obstaculizado el desarrollo de los mercados secundarios, ya que los bonos de titulización de unos inversores eran difícilmente intercambiables con los de otros.

Existen varias iniciativas para conseguir un mercado de valores de titulización más homogéneo, sencillo y estandarizado. La industria europea, encabezada por la EFSRT *(European Financial Services Round Table)* y AFME *(Association for Financial Markets in Europe),* está trabajando en un ambicioso proyecto para conseguir una categoría estandarizada en el ámbito de la UE de ABS de alta calidad, a través del programa *Prime Collateralized Securities* (PCS). El principal objetivo de este programa es aumentar la estandarización en la elaboración de informes, el uso de definiciones, las obligaciones de información y los tipos de estructuras. En Estados Unidos, por su parte, se está proponiendo a través de la Ley Dodd-Frank un tratamiento regulatorio diferente para las titulizaciones hipotecarias de alta calidad. En concreto, cuando el conjunto de activos que respaldan el bono de titulización cumple los requisitos para ser una hipoteca residencial cualificada (QRM, por sus siglas en inglés), la estructura titulizada podrá acogerse a determinadas ventajas regulatorias (como, por ejemplo, quedar exenta de las reglas de retención mínima del riesgo por parte de los originadores). El cuadro 3 muestra los criterios para determinar si un activo puede considerarse QRM en Estados Unidos y proporciona una comparativa con los requisitos del proyecto PCS.

Otra iniciativa que indirectamente redundará en una mayor homogeneización de los valores de titulización es el desarrollo de una legislación específica para los mercados no organizados *(over the counter,* OTC) de derivados[22]. El uso intensivo de los derivados en las estructuras de titulización genera complejidad en la valoración y en la comprensión de estos instrumentos por parte de los inversores. De manera general, el nuevo marco regulatorio exige mayores requisitos de capital para aquellas transacciones que contengan derivados no estandarizados, de forma que los participantes en el mercado estarán incentivados a utilizar instrumentos estandarizados y a diseñar las estructuras de titulización, de forma que obtengan el mayor ahorro posible en términos de capital. Como consecuencia, es posible que algunos tipos de titulizaciones no sean económicamente viables y se alcance un mayor nivel de estandarización de estos productos reduciendo el abanico de derivados utilizables para que una transacción sea beneficiosa.

Lograr productos más simples y homogéneos debería ayudar a los inversores a desarrollar métodos de valoración más robustos, reducir la segmentación del mercado e impulsar la presencia de precios de referencia en el mercado.

21 Véanse Joint Global Initiative (2008), IOSCO (2010) y CESR (2009).

22 Esta es una de las medidas para la reforma del sistema financiero global acordadas por el G 20 en la cumbre de líderes de abril de 2009 en Londres.

LOS PROGRAMAS QRM (a) (ESTADOS UNIDOS) Y PCS (b) (UE): ASPECTOS BÁSICOS

CUADRO 3

	EEUU: QRM	UE: PCS
Garantía	Primera hipoteca	Primera hipoteca (segunda si la primera está incluida)
Vencimiento	30 años	—
Solicitud por escrito del prestatario	Sí	—
Mora (c)	No	No
Mora previa	El prestatario no puede haber estado en mora durante 60 días o más en el pasado o con alguna deuda pendiente durante los 24 meses precedentes	Máximo un pago en los últimos doce meses
Condiciones de pago	No está permitido: carencia de principales, amortizaciones negativas, pagos a vencimiento o penalizaciones por amortizaciones anticipadas	Como máximo, se permiten pagos anuales
Loan to Value (LTV)	80 %	100 %
Obligación de que el prestatario efectúe un pago inicial en efectivo	Sí	—
Calidad del deudor	Mensualidad hipoteca / ingresos brutos mensuales: 28 % Deudas mensuales totales / ingresos brutos mensuales: 36 %	Mensualidad hipoteca / ingresos brutos mensuales: 38 %
Puntos y comisiones	Máximo 3 % del préstamo	—
Prohibición de sustituir al prestatario	Sí	—
Publicación de los compromisos de mitigación en caso de impago asumidos por el originador	Sí	Sí

FUENTE: Elaboración propia.

a QRM son las siglas en inglés de Qualified Residential Mortgage.
b PCS son las siglas en inglés de Prime Collateralized Securities.
c El deudor no se retrasa más de 30 días en el pago de la hipoteca.

TRANSPARENCIA EN LOS MERCADOS DE NEGOCIACIÓN DE LOS VALORES DE TITULIZACIÓN

En apartados anteriores se han comentado las iniciativas regulatorias puestas en este sentido y que afectan, no solamente a la información disponible en el momento de la creación de los valores, sino también a lo largo de la vida de los mismos[23]. Es necesaria una mayor transparencia para fomentar la eficiencia del mercado, para reducir asimetrías de información entre los agentes de mercado y así, por un lado, mitigar los conflictos de intereses existentes a lo largo de la cadena de titulización y, por otro, promover la competencia entre los intermediarios *(dealers)* que operan con este tipo de productos. Así, unos niveles mayores de transparencia facilitarían la valoración de carteras y posiciones y ayudarían a los inversores a la hora de evaluar la calidad de las ejecuciones de órdenes que impliquen a intermediarios.

No obstante, algunos analistas y participantes en el mercado argumentan que, en el actual escenario de crisis, los precios de negociación podrían tan solo reflejar ventas urgentes y no las condiciones «fundamentales» de mercado. Además, dado que el número de participantes en el mercado secundario ha sido tradicionalmente reducido, existe una preocupación añadida por el riesgo que supone en el anonimato de los participantes en

23 La modificación de la Directiva de Adecuación del Capital, CRD II, también incluye, para aquellos bancos que actúen como originadores o promotores de titulizaciones, la obligación de proporcionar de manera continuada información a los inversores sobre la evolución de las carteras titulizadas.

el mercado y sus estrategias de negociación un aumento de la transparencia postnegociación. Sin embargo, los acontecimientos han dejado claro que el actual nivel de información disponible en los mercados para inversores y supervisores en muchos casos está todavía por debajo de los niveles óptimos.

En este contexto, la propuesta presentada por la Comisión Europea para la revisión de la actual Directiva MiFID[24] prevé un nuevo régimen de transparencia postnegociación para productos estructurados que cuenten con folleto informativo o que se negocien en un mercado organizado. En particular, se establece la obligación de publicar el precio, volumen y momento en que se ha efectuado una transacción tanto en mercados organizados como para el caso de sociedades de inversión y operadores de mercado funcionando en Sistemas Multilaterales de Negociación (SMN) o en Sistemas Organizados de Negociación (SON). La Comisión Europea ha delegado en ESMA la determinación de los detalles prácticos para este nuevo marco de transparencia.

Sin embargo los esfuerzos regulatorios llevados a cabo para mejorar los niveles de transparencia de los mercados secundarios organizados para los valores de titulización podrían no ser del todo eficaces si no se tiene en consideración que este tipo de productos ha sido negociado, mayoritariamente, en mercados OTC. Así, por ejemplo, en 2005, el 95 % de la negociación de los valores de titulización europeos se había realizado directamente cliente-*dealer* o entre *dealers,* telefónicamente[25].

En general, los mercados OTC se caracterizan por su opacidad y los de titulización no han sido una excepción. En los años previos a la crisis, los precios de mercado disponibles para una gran parte de la titulización europea eran proporcionados por las empresas proveedoras de datos y dichos precios no procedían necesariamente de transacciones realmente efectuadas, sino que a veces se trataba contribuciones de los agentes del mercado al libro de órdenes. A pesar de su cuestionable validez como referencias de mercado, estos precios fueron sistemáticamente utilizados en las valoraciones de colaterales en operaciones *repo,* valoraciones de carteras o posiciones de riesgo y para el cálculo del valor neto de los activos a efectos contables.

En este contexto, el sector privado ya ha puesto en marcha varias iniciativas enfocadas a corregir los fallos que la crisis financiera ha puesto de manifiesto. Por ello, las últimas plataformas electrónicas de negociación para bonos europeos (incluidos los procedentes de titulizaciones), como BondMatch o Galaxy, contemplan el cumplimiento de medidas en el ámbito de abuso de mercado, la existencia de una cámara de compensación con cámara de contrapartida central y cuentan con un sistema multilateral para el cruzado de operaciones[26]. También el lanzamiento de nuevos índices de referencia para los bonos de titulización europea, como el Markit iBoxx European ABS Index[27], puede mejorar la percepción de los inversores con respecto a los retornos de las carteras de titulización europea.

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24 La revision de la MiFID se ha presentado bajo la forma de dos documentos: una versión revisada de la actual directiva MiFID y, en documento separado, un reglamento, MiFIR.

25 Este dato aparece en el documento *Response to FSA discussion paper 05/05 on trading transparency in the UK secondary bond market,* realizado por las siguientes asociaciones: Bond Market Association, European High Yield Association, Trade Association for Emerging Markets, European Primary Dealers Association y European Securitisation Forum. Véase también IOSCO (2010).

26 Estos Sistemas Multilaterales de Negociación han sido autorizados por la *Autorité des Marchés Financiers* francesa.

27 El Markit iBoxx European ABS Index está formado a partir de datos proporcionados por más de 20 creadores de mercado.

En general, en los mercados OTC se debe mejorar la publicación de información y disponer de una mayor transparencia en la formación de precios, con una clara distinción entre precios de transacciones efectivamente realizadas y cotizaciones de precio. También deberían desarrollarse libros de órdenes que casen órdenes de forma multilateral y que dispongan de registros históricos como referencia para análisis en el ámbito de la postnegociación.

6 Conclusiones

A lo largo de este documento se ha analizado la forma en que los mercados de titulización pudieron contribuir a propagar las tensiones desatadas al comienzo de la actual crisis financiera a otras partes del sistema financiero. En concreto, se estudia el papel que ha podido desempeñar la ausencia de un mercado secundario para los valores de titulización que actuase de mecanismo estabilizador, proporcionando precios fiables para este tipo de activos y creando un entorno propicio para dar entrada a nuevos inversores y salida a aquellos otros que hubiesen optado por seguir esquemas de inversión más conservadores.

En estos momentos, desde diferentes ámbitos institucionales se ha manifestado la necesidad de recuperar la titulización como una alternativa válida de financiación para el sector financiero y empresarial, aunque corrigiendo los errores evidenciados en el pasado e introduciendo nuevos elementos que contribuyan a eliminar el estigma que viene soportando esta industria en los últimos años y lograr hacerla atractiva, de nuevo, para emisores e inversores. En todo caso, hay que tener en cuenta que, para que las iniciativas regulatorias tengan el éxito deseado, es necesario conseguir un equilibrio entre transparencia, desde el punto de vista de los inversores, que demandan mayor y mejor acceso a la información, y la eficiencia, a fin de que la divulgación de dicha información no sea excesivamente onerosa para los originadores.

En este contexto, es deseable que las distintas iniciativas que se lleven a cabo en el ámbito de la titulización tengan presente su posible impacto de cara a facilitar el desarrollo de mercados secundarios líquidos y eficientes para este tipo de valores. La experiencia obtenida de la evolución histórica de otros mercados financieros, como el de acciones, muestra la necesidad de conseguir mayores y mejores estándares de divulgación de la información, al tiempo que una mayor disponibilidad de esta de una forma continuada durante la vida de los activos, que permita realizar análisis más precisos y tomar unas decisiones más eficientes. De la misma forma, la transparencia, tanto en relación con los productos como con los mercados donde se negocian, es necesaria para lograr reglas de difusión homogénea y comparable a escala internacional. Por su parte, la industria debe continuar con sus esfuerzos para conseguir que estos productos sean menos complejos y más estandarizados, pues normalmente solo los instrumentos relativamente sencillos, sobre los que existe información accesible y comprensible por parte de los inversores, llegan a ser negociados a gran escala en mercados secundarios.

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BUSINESS MODELS OF INTERNATIONAL BANKS IN THE WAKE OF THE 2007-2009 GLOBAL FINANCIAL CRISIS

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BUSINESS MODELS OF INTERNATIONAL BANKS IN THE WAKE OF THE 2007-2009 GLOBAL FINANCIAL CRISIS

This study provides an analysis of developments in the business models of large internationally operating banks over the period 2006-2010. The investigation focuses on a sub-group (peer group) of the largest internationally active banks in the world (10 institutions out of a wider group of 22), which allows for an in-depth comparison of their business models, balance sheet structures and performance. Our findings support the view that commercial banking oriented business models proved more resilient during and in the aftermath of the global financial crisis (2007-2009) due to their relatively modest exposures to trading and derivatives activities, their greater reliance on stable sources of funding and larger diversity of business lines.

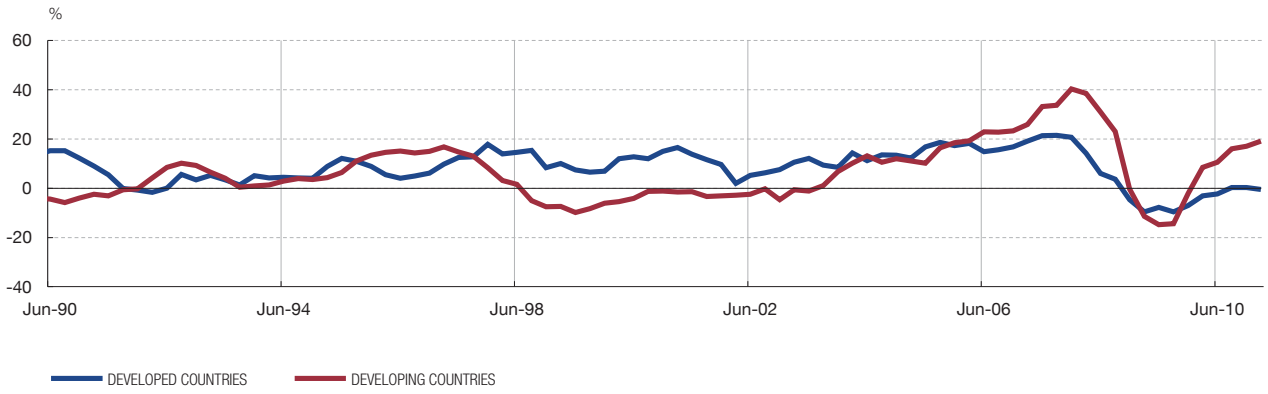
Regarding perspectives for the future, the regulatory environment is the key challenge for banks' business models in the years ahead of us. The evidence shown through the article strongly suggests that regulation should take into account its business model. On this issue, the article briefly discusses how some characteristics intrinsically linked to the business models have been taken into account in several recent important regulatory initiatives such as those that address the systemic and moral hazard risks associated with large financial institutions and those aimed at isolating or ring fencing retail banking vis-à-vis investment banking.

1 Introduction

The internationalisation of the banking industry has intensified during the past few decades, both in terms of cross-border capital flows and cross-border entry in banking sectors overseas. As shown in Chart 1, international banking exposures grew at average annual rates above 10% since the mid nineties and up to the start of the financial crisis in the advanced economies, and gathered strength in emerging economies in the years up to the crisis (2003-2007). This process occurred in parallel with the globalisation of international trade and brought important benefits in terms of economic welfare across the globe [Goldberg (2009), CGFS (2010c)]. The rapid advance of international banking also had important repercussions for funding and liquidity management at the institutions involved, and resulted in a diverse range of practices across the spectrum ranging from centralised to decentralised banks [CGFS (2010b)]. All in all, international banking has been an important channel for allocating financial resources around the globe and by doing so has contributed significantly to supporting world economic growth and increasing the financial linkages between areas with excesses of savings and others with lack of them.

The rapid expansion of international banking was interrupted sharply by the 2007-2009 global financial crisis which saw important reductions in banks' international activities and exposures (Chart 1). The crisis has led to important restructurings of business models and international strategies of many globally oriented banks, often aided by unprecedented government support in the form of substantial capital injections, asset protection schemes and liability guarantees [Stolz and Wedow (2010)]. Moreover, cross-border bank linkages proved important transmission channels of the crisis, which predominately had its origin in the mature economies and their complex financial systems, to emerging market economies [Cetorelli and Goldberg (2011a)]. Hence, the high degree of interconnectedness of the global banking system, established over the previous years through the interrelated processes of financial liberalisation, globalisation of trade and finance and financial innovation, contributed to spread the impact of the financial crisis on domestic banking systems across the world [Lane and Milesi-Ferretti (2008)].

YEAR ON YEAR GROWTH IN BANK'S EXTERNAL ASSETS. DEVELOPED VS. DEVELOPING COUNTRIES CHART 1



SOURCE: BIS.
NOTE: Exchange rate adjusted.

This article provides an analysis of developments in the business models of large internationally operating banks over the period 2006-2010, thus including the global financial crisis, which have seen important changes in the global banking landscape. The investigation focuses on a sub-group *(peer group)* of the largest internationally active banks in the world (10 institutions out of a wider group of 22), which allows for an in-depth comparison of their business models, balance sheet structures and performance.

The analysis distinguishes between four, relatively simplified and general business models for internationally operating banks: The specialised investment bank, the investment banking oriented diversified or universal bank, the commercial banking oriented diversified or universal bank and the specialised commercial bank (see Table 1).

Our findings support the view that commercial banking oriented business models proved more resilient than the specialised and diversified investment banking business models during and in the aftermath of the global financial crisis (2007-2009). In fact, the balance sheet structure of both the specialised commercial bank and commercial banking oriented universal bank models displayed relatively modest adjustments after 2008, while those of numerous banks adopting investment banking oriented business models changed relatively strongly, with significant relative reductions in securities markets activities, on the assets side, and in trading and derivatives exposures, on the liabilities side. This was compensated by relative increases in retail and wholesale lending activities, and in deposit financing. All in all, most investment banking oriented universal banks in our sample started to move towards the business model of the commercial banking oriented universal bank. In this process, international bank exposures in developed countries experienced a contraction and have not recovered previous rates of growth, in contrast with the remarkable rebound in developing economies – as Chart 1 suggests –.

The structure of the article is as follows. In Section 2 we provide an overview of the various business models of large global banking groups, which shows the large dispersion in the their activities – retail, wholesale commercial, investment banking and asset management – among banks. We also discuss recent trends in the size of banks and provide evidence of the significant increase in the concentration of international banks. The subsequent section focuses on the performance of the banks in the peer group, which reveals important differences in behaviour across countries as well as inside the same country. Section 4 investigates in depth the funding modes of several of the banks, which shows the existence

of strongly different funding structures between different business models. Moreover, the section highlights the differences in liquidity management of large globally active banks, which range between centralised and decentralised approaches. Finally, the last section presents our conclusions, including a discussion of the challenges and perspectives of international banking. The Annex shows different financial indicators for the group of the largest globally active banks.

2 Recent trends in global banks' business models and size

The international banking groups that dominate global banking are organized across a variety of business models, depending on historical and geographical characteristics, comparative advantages and strategic choices. A traditional separation, especially in the US industry, has been that between investment and commercial banks. Investment banking entails underwriting securities issuance for corporate and government clients, advice in mergers and acquisitions (M&A), sales and trading activities in financial markets (including securities lending activities) and asset management business, financed predominantly by wholesale funding, as investment banks as a rule have limited access to deposit funding.[1]

During the past decade, investment banks developed relatively new business lines such as proprietary trading, – which involved trading in financial markets with the firm's own funds –, and prime brokerage business, which entailed providing financial services, including clearing and settlement services and securities lending to professional investors such as hedge funds. By contrast, commercial banks in the US fund themselves largely through deposits and hence had access to the liquidity facilities of the Federal Reserve, while their business was concentrated on providing retail and wholesale lending to households and corporations. With the adoption of the Gramm-Leach-Billey Act, in 1999, the traditional separation between investment and commercial banks in the US was overturned which allowed for the establishment of universal banks that combined a wide range of banking activities in one bank holding company [Komai and Richardson (2011)]. Hence, the US moved towards the global dominant business model of universal banking, that other advanced countries had already accepted – initially in Europe and later in Japan as well –.

Given the fact that a large range of business undertakings is possible for banking groups active in the international arena, it is convenient to distinguish between specialised and diversified business models [ECB (2010)]. Specialised banks are banks that restrict themselves – only or predominantly – to a few activities, for example investment banking or retail banking services. By contrast, diversified or universal banks combine different banking activities in one organisation, for instance a bank combining investment banking and corporate banking activities.

In order to analyse the impact of the 2007-2009 global financial crisis on the business models of large global banking groups we focus on the 22 banks that belong to the list of the largest systemically important financial institutions (SIFIs) in the world, as published by the Financial Times in November 2009 [FT (2009)]. The choice of the sample was based predominantly on business model, size and geographical criteria.[2] They can be split into four groups along the

1 Due to regulatory constraints, the five US investment banks that existed before the 2007-2009 financial crises – Goldman Sachs, Morgan Stanley, Merrill Lynch, Lehman Brothers and Bear Stearns – did not have deposit-taking business.

2 US commercial banks (Bank of America-Merrill Lynch, JP Morgan Chase and Citigroup), US investment banks (Goldman Sachs, Morgan Stanley), banks from respectively the euro area (including the two largest Spanish banks Banco Santander and BBVA), the UK and Japan, and finally banks from some other countries, i.e. Switzerland and Canada (UBS, Credit Suisse and Royal Bank of Canada). The Annex provides a set of financial indicators that allows for a more detailed inspection of these banks.

TOTAL ASSETS OF THE MOST INTERNATIONALLY-ACTIVE INSTITUTIONS

TABLE 1

	Commercial Banks	Investment Banks
Specialised	Its funding structure is dominated by customer deposits, and it is characterized by a reduced exposition to trading and derivatives. The asset structure comprises strong lending activity (retail /wholesale), and shows limited trading business. (i.e.: Mitsubishi UFJ).	Its funding structure is dominated by short-term debt financing and by a significant exposure to trading and derivatives. Customer deposits financing is not significant. The asset structure is depicted by the considerable contribution of investment securities and trading activities. The asset structure is characterized by reduced lending activity (retail / wholesale) (i.e.: Goldman Sachs & Morgan Stanley)
Diversified or Universal	Its funding structure is dominated by customer deposits, although it shows a more diversified profile than that of specialized commercial banks. The finance structure exhibits a reduced exposure to trading and derivatives . The asset structure displays a relatively los contribution of trading activities. Customer deposits financing and lending activities (retail / wholesale) play a relevant role compared with investment banking oriented universal banks. (i.e.: Citigroup, HSBC, Banco Santander and BBVA).	Its funding structure is dominated by short and long-term debt issuances and significant exposures in their trading and derivatives portfolios. Significant degree of financing through customer deposits though lower than that in the commercial banking oriented universal banks' segment. The asset structure shows a solid presence of investment securities and trading activities. The asset structure contains considerable lending activity (retail / wholesale), although lower than that in the commercial banking oriented universal banks. (i.e.: Barclays, BNP Paribas, Deutsche Bank and UBS).

SOURCE: Merck, Van Rixtel and González.

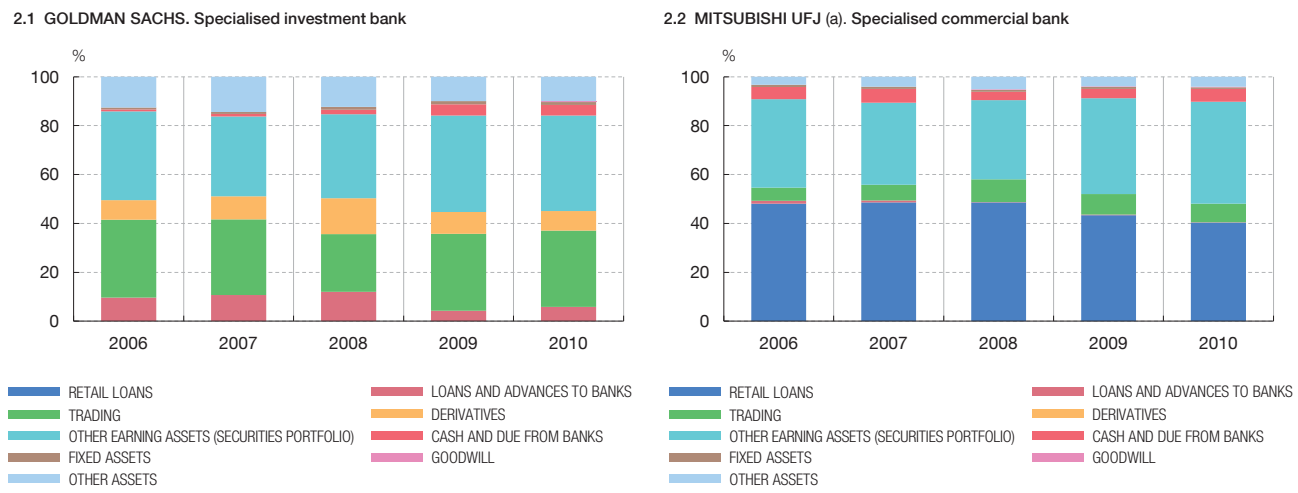
lines of the business model/speciality matrix represented in Table 1. For the sake of simplicity we have further restricted the number of banks shown in the tables and graphs to 10 institutions, which form our peer group of banks representative of each category.

First, the model of the specialised or "pure" investment bank, such as for example Goldman Sachs.[3] Second, the investment-banking oriented diversified or universal bank, which includes Barclays, BNP Paribas, Deutsche Bank and UBS. These banks show predominantly investment- banking related exposures in both asset and funding structures, but at the same time they have significant business lines related to more traditional commercial banking activities. Third, we have identified the model of the commercial-banking oriented diversified or universal bank, of which Citigroup and HSBC and the two largest Spanish banks, i.e. Banco Santander and BBVA, are examples. Here, the orientation towards commercial banking may involve a diversification into retail and wholesale banking, or a specialisation on either retail or wholesale banking business, while at the same time maintaining considerable exposures to investment banking activities.[4] Finally, we define the specialised or "pure" commercial bank as characterised by a very high concentration of business activities on both deposit funding and retail and wholesale lending. We use funding characteristics as the main criterion to classify a commercial bank, taking into account that the financial crisis put the spotlight especially on banks' funding structures.

3 Although both Goldman Sachs and Morgan Stanley changed their official status from investment bank to traditional bank holding companies in October 2008, which was a pragmatic move to obtain access to the full range of liquidity facilities of the Federal Reserve and to avoid using mark-to-market accounting for certain assets [Wall Street Journal (2008)], their actual business model remained that of a specialised investment bank.

4 Our data source Bankscope does not unequivocally provide data on retail and wholesale bank lending activities for all banks and hence we cannot provide more detailed classifications of retail and wholesale-oriented commercial banks.

SPECIALISED BANKS. ASSETS STRUCTURE 2006-2010 CHART 2



SOURCE: Bankscope.

a Mitsubishi UFJ reports according to the Japanese fiscal period. Thus, 2010 end-of-period data are reflected by the statements released on 31.03.2011.

Hence, a very high relative dependence on deposit funding has prevalence over a very high relative share of retail and wholesale lending to classify a bank as a specialised commercial bank. In our sample, Mitsubishi UFJ fulfils the criteria of this business model.

Changes in the asset structures of these ten banks over the period 2006-2010 are shown in Charts 2 to 4. For the sake of clarity, we have aggregated various asset items to show more clearly developments in retail and corporate lending, lending to banks and securities markets activities, which include a wide range of items such as securities holdings and trading and derivatives exposures.

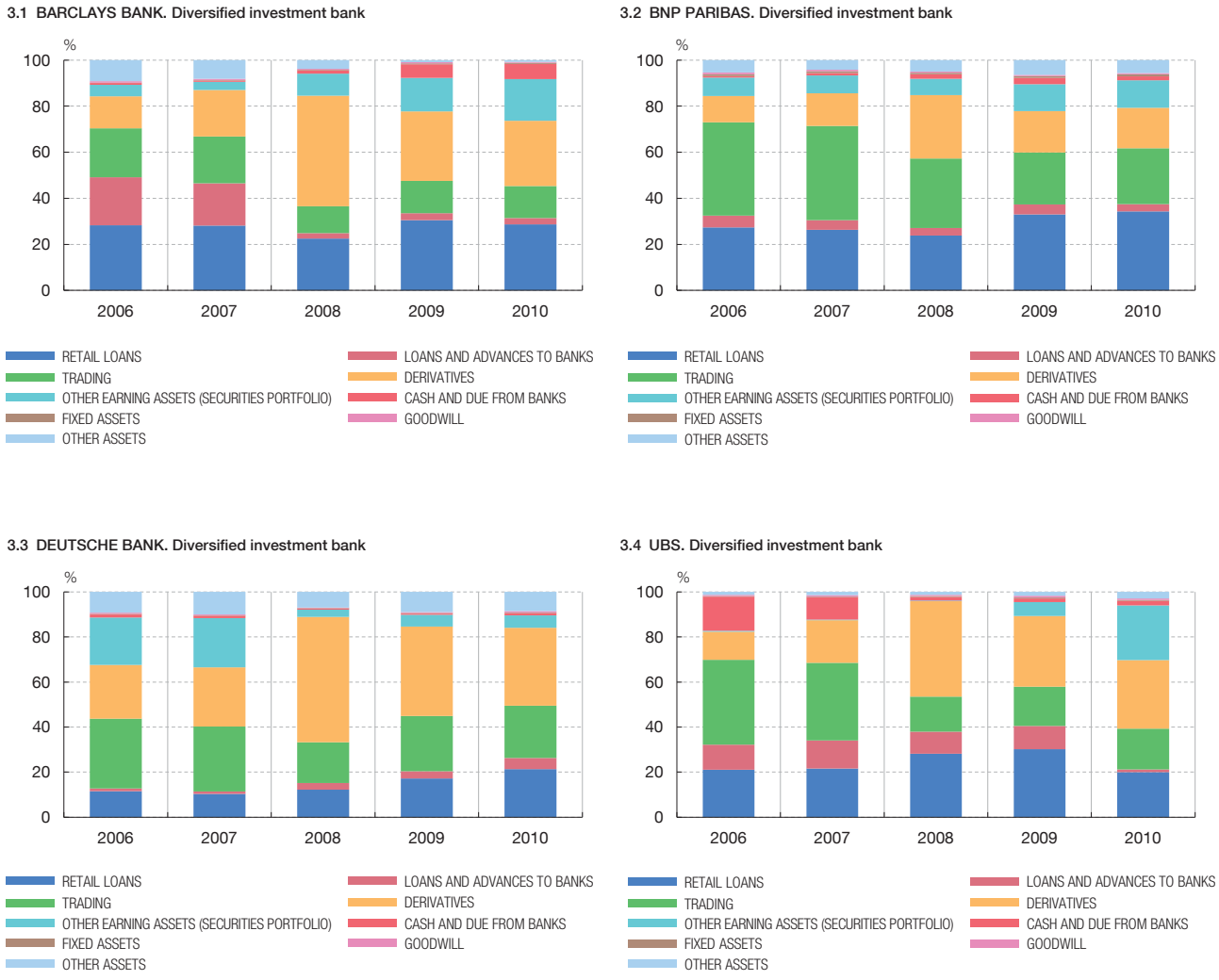
2.1 ASSET STRUCTURES OF SPECIALISED BANKS

Goldman Sachs distinguishes itself as the specialised investment bank, with around 80% of its assets related to securities markets activities and negligible activities in retail and corporate lending at end-2010 (Chart 2.1) and around 30% of its assets linked to trading activities, the highest share of the ten banks that we analyse in more detail. Furthermore, after the unprecedented dislocations in international interbank markets, in 2008, Goldman Sachs reduced rather significantly its lending to banks, limiting further the already very modest lending business. By contrast, Mitsubishi UFJ displays the model of the specialised commercial bank, with very high – in relative terms – lending business to households and enterprises and very little trading activity (at only around 8% of its total assets) (Chart 2.2); most importantly, its funding structure has the highest dependence on retail deposits of all banks in our sample (see Section 5). At the same time, this bank maintains a large securities portfolio, which consists largely of securities holdings, especially of government bonds

2.2 ASSET STRUCTURES OF DIVERSIFIED OR UNIVERSAL BANKS

At end-2010, Barclays, BNP Paribas, Deutsche Bank and UBS securities markets activities amounted to between 55% and 70% of their total assets; at the same time, retail and wholesale lending operations amounted to between 20% and 35% of total assets (see Chart 3). The investment banking orientation of these banks was highlighted in 2008, when their derivatives exposures increased very strongly due to valuation adjustments in the context of the financial crisis. The combined derivatives and trading positions of the four banks as a percentage of their total assets jumped bringing their total securities markets activities to between 55% and 80% of total assets for that year.

DIVERSIFIED INVESTMENT BANKS. ASSETS STRUCTURE 2006-2010 CHART 3



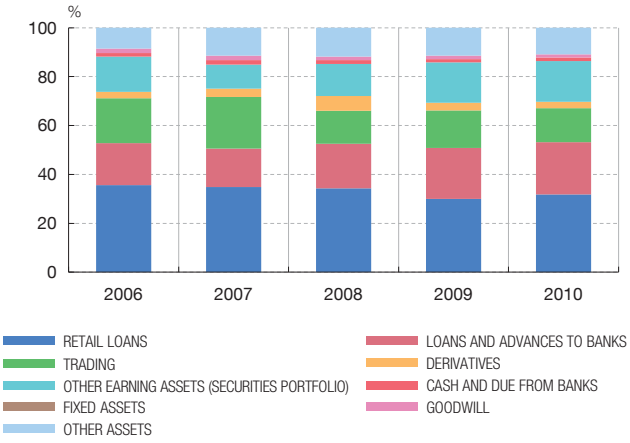
SOURCE: Bankscope.

Barclays, BNP Paribas and Deutsche Bank expanded substantially their commercial banking activities in relative terms after 2008, as shown by the increasing shares of their lending to retail and corporate customers. This process was fostered by important acquisitions, such as the takeover of Fortis by BNP Paribas and that of Deutsche Postbank by Deutsche Bank. The exception was UBS, which experienced a very significant deleveraging after 2008, undergoing major changes in its business model. The dominant move towards commercial banking after 2008, is reflected in significant declines in the shares of derivatives and trading activities, with Deutsche Bank and Barclays mostly reducing derivatives exposures in relative terms, and BNP Paribas lowering its trading activities. The data also show that Barclays and UBS, followed by BNP Paribas, retreated significantly from interbank lending activities in recent years, owing to the severe impact of the financial crisis on international interbank funding markets.

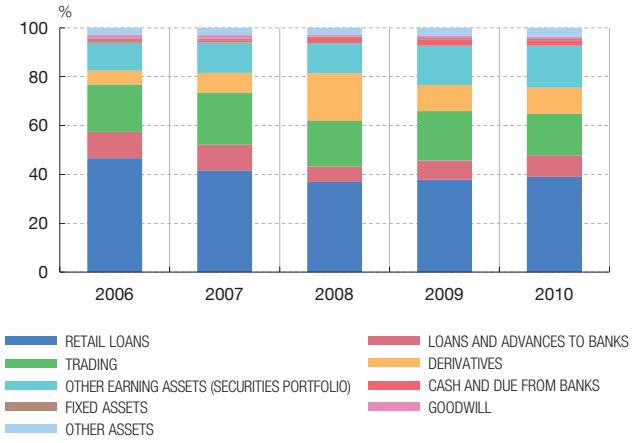
The commercial banking oriented business model (Citigroup, HSBC, Banco Santander and BBVA) can be seen in the relatively large size of their lending activities that totalled between 45% and 65% of total assets at end-2010, and which consisted of retail, non-financial corporate wholesale and interbank lending (see Chart4). At the same time, their nature as universal banks was reflected in the importance of securities markets activities, between 25% and 40% of total assets. Notwithstanding relevant investment banking

DIVERSIFIED COMMERCIAL BANKS. ASSETS STRUCTURE 2006-2010 CHART 4

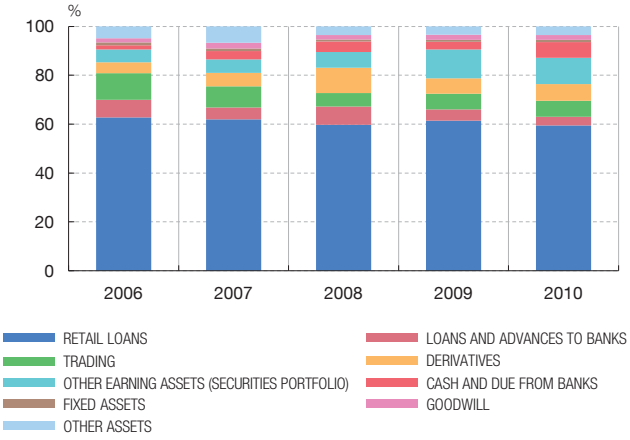
4.1 CITIGROUP. Diversified commercial bank



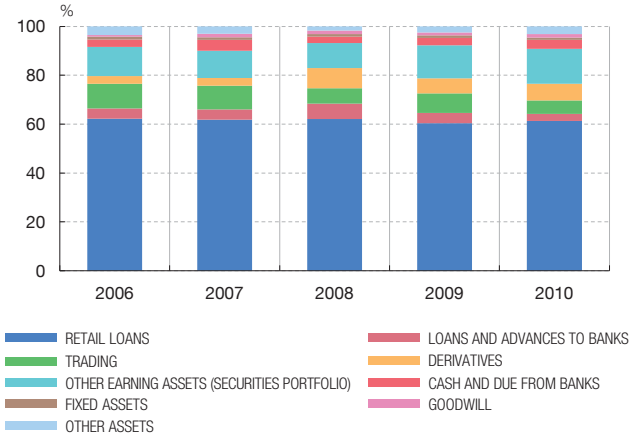
4.2 HSBC. Diversified commercial bank



4.3 BANCO SANTANDER. Diversified commercial bank



4.4 BBVA. Diversified commercial bank



SOURCE: Bankscope.

business, these banks are characterised by relatively small shares of derivatives and trading exposures in their asset structures, those of Banco Santander and BBVA being the lowest. The data show that basically all four banks increased the share of retail and corporate lending in total assets during the past few years, while generally reducing the share of interbank lending, which seems related to the impact of the global financial crisis. Besides, their balance sheet structures have been more stable than those of other banks.

Overall, the detailed investigation of the ten banks in our sub-sample shows in general the dominance of the diversified or universal bank model. The diversification trend in global finance, involving the emergence of large financial conglomerates covering a wide range of financial services including commercial and investment banking, asset management and insurance, has been interpreted as a positive development generating significant economies of scope to the benefit of especially large international clients [Institute of International Finance (2010)]. The results of empirical research on this phenomenon have been somewhat mixed, with earlier studies suggesting that functional diversification of banking groups reduced their economic value rather than enhancing it, providing arguments against combining different business lines in one universal bank [Schmid and Walter (2006), Laeven and Levine (2007)]. More recent empirical studies, though, indicate that the business diversification of banks, including international diversification, may

TOTAL ASSETS OF THE MOST INTERNATIONALLY-ACTIVE INTITUTIONS

TABLE 2

Total Assets	Evolution since the end of 2006	2010 Closing data (billion dollars)	Rate of increase from 2010 (a) with respect to:			
		31.12.2010	31.12.2009	31.12.2008	31.12.2007	31.12.2006
BNP Paribas SA	+	2,669.9	-2.9	-3.7	17.9	38.7
Deutsche Bank AG	+	2,546.3	27.0	-13.5	-1.0	21.2
HSBC Holdings Plc	+	2,454.7	3.8	-2.9	4.3	31.9
Mitsubishi UFJ Financial Group, Inc.	+	2,392.5	1.4	4.7	8.5	12.0
Barclays PLC	+	2,323.9	8.0	-27.4	21.4	49.4
Royal Bank of Scotland Group Plc	+	2,267.7	-14.3	-39.5	-23.5	66.8
Bank of America - Merrill Lynch	+	2,264.9	1.9	24.6	32.0	55.2
JPMorgan Chase & Co.	+	2,117.6	4.2	-2.6	35.6	56.7
Citigroup Inc.	+	1,913.9	3.1	-1.3	-12.5	1.6
Mizuho Financial Group, Inc.	+	1,896.7	3.0	5.6	5.0	8.1
ING Groep N.V.	+	1,666.4	7.2	-6.3	-5.0	1.7
Banco Santander, S.A.	+	1,626.8	9.6	16.0	33.4	46.0
Société Générale SA	+	1,512.7	10.6	0.2	5.6	18.3
UBS AG	–	1,406.4	-1.7	-34.6	-42.1	-43.9
UniCredit SpA	+	1,242.0	0.1	-11.1	-9.0	12.9
Credit Suisse Group AG	–	1,101.9	0.1	-11.8	-24.2	-17.8
Goldman Sachs Group, Inc.	+	911.3	7.3	3.0	-18.6	8.7
Morgan Stanley	–	807.7	4.7	22.6	-22.7	-27.9
Banco Bilbao Vizcaya Argentaria, S.A.	+	738.6	3.3	2.4	10.1	34.2
Royal Bank of Canada	+	712.9	10.9	0.3	21.0	35.3
Standard Chartered Plc	+	516.3	18.3	18.7	55.9	91.9
Nomura Holdings, Inc.	+	442.9	13.8	47.7	39.5	2.3

SOURCE: Bankscope and calculations from the authors.

a Rates of increase in local currency. Balances at the end of 2010 (31.12.2010) except for Japanese institutions (31.3.2011) and Canadian institutions (31.10.2010).

improve their value and hence support the view that economies of scope may be pronounced in banking [Gulamhussen et al. (2011), Elsas et al. (2010); for a more nuanced view, see Van Lelyveld and Knot (2009)].

The trend of functional diversification adopted by most large global banking groups has been intertwined with the significant increase in the consolidation and concentration of banking services into fewer and much larger banking conglomerates [De Nicolo et al. (2004), Buch and DeLong (2010), Herring and Carmassi (2010)]. The 2007-2009 financial crisis seems to have reinforced this trend rather significantly when looking from 2006 to 2010. Table 2 shows the size of 22 of the largest international banks in the world which were considered systemically important (SIFIs) by the Financial Times (developments in their total assets are depicted in Annex 1). At end-2010, the amount of total assets of 19 of these banks had increased when compared with 2006, in a majority of cases at double digit growth rates.[5] Only three experienced a decline in total assets from 2006, Morgan Stanley, UBS and Credit Suisse, all of them banking groups either specialised or predominantly diversified into investment banking activities.

5 Data for Japanese banks are as of the end of the fiscal year, i.e. end of March. Data for Royal Bank of Canada are as of the end of October.

The longer-term trend of increasing total assets of the world's largest global banks from 2006 to 2010 has been buttressed by substantial consolidation processes in several national banking systems, sometimes with public support, which have resulted in higher degrees of concentration in national markets.[6] Some of these processes involved large government financial support or private-public sector partnerships, i.e. private solutions with public assistance (such as the takeover of Bear Stearns by JP Morgan Chase); other were private sector "only" solutions, for example the takeover of Washington Mutual by JP Morgan Chase. Some cross-border resolutions of failed banks changed the structure of the domestic banking industries substantially, such as the takeovers of Bradford & Bingley and Alliance & Leicester by Banco Santander, of Fortis by BNP Paribas and of certain parts of the investment banking and capital markets business of Lehman Brothers by Barclays.

At the same time, in the immediate aftermath of the financial crisis, the banks in our sample showed a downward adjustment of their size: Of the ten largest banks, seven had smaller balance sheets in 2010 than in 2008. For some banks, this deleveraging was very pronounced: Royal Bank of Scotland, UBS and Barclays reduced their total assets between 2008 and 2010 by 40%, 35% and 27% respectively (Table 2). In the case of UK banks, this restructuring occurred on the back of significant public support. The process of deleveraging also resulted in downward adjustments of the balance sheets of Goldman Sachs and Morgan Stanley, the two remaining US independent investment banks, which was corrected somewhat after 2008 (Annex 1, Chart 1.B).

Notwithstanding the deleveraging of banks' balance sheets since the peak of the turmoil, the financial crisis doesn`t seem to have interrupted the longer-term trend of increasing size. Only three out of the 22 banks considered had lower total assets in 2010 than in 2009 (Table 2). Clearly bank resolutions processes have had an upward impact on the size of various globally operating banks. But there are other factors to explain the longer-term trend of increasing size in banking. One is the significant economies of scale identified in banking, where larger size generates efficiency benefits derived from technological advantages and allows for better diversification of risk [Wheelock and Wilson (2009), Feng and Serletis (2010) Hughes and Mester (2011)]. Additional factors of more strategic nature should not be discarded. For instance, very large banks can benefit from lower funding costs arising from an implicit government guarantees that they would not be allowed to fail[7]; Brewer III and Jagtiani (2011) show that banks may be willing to pay a premium for mergers that would increase their size to a level generally perceived as being "too big to fail".

3 Recent trends in global banks' performance

In addition to size, the 2007-2009 global financial crisis had a strong impact on the performance of the largest international banking groups as well. One of the most widely used indicators for bank performance is the return on average equity (ROE), measured by net income over the average of total equity at the end of the year. It shows how well a bank has performed on various profitability categories, during a particular year, and indicates how competitive the bank can be in raising equity in financial markets [Hempel and Simonson (1999)].

ROAEs for our peer group of the largest global banks are shown in Annex 2. Most banks experienced a sharp decline in profitability for the reporting year 2008. However, the banks that display more stable ROEs and have kept them high over the period 2006-10 are

6 At the same time, this process does not seem to have resulted in a strong adjustment in the overall size of the industry.

7 At the same time, it needs to be acknowledged that larger banks may hold funding advantages over smaller banks that may be due to a variety of factors and not necessarily only to "too big to fail" arguments [see Standard & Poor's (2011)].

commercial-banking oriented universal banks without exception, most notably BBVA, Banco Santander, Standard Chartered Bank and Royal Bank of Canada (Annex 2). Nomura, Royal Bank of Scotland and UBS, all of them investment-banking oriented universal banks, are on the opposite side. Moreover, the most profitable global banks in 2006, i.e. Goldman Sachs and Morgan Stanley, displayed a rather high variability of their return on average equity over the subsequent years.

Interestingly, the data show a marked recovery in profitability after the sharp decline in 2008, for most banks reaching levels of ROAE in 2010 not far from those prevailing in 2006, prior to the outbreak of the financial crisis. This is indicated by rather pronounced V-shape patterns in the evolution of return on average equity for many large internationally active banks (Annex 2). At the same time, there are notable differences in levels of ROAE among banks in different countries. In particular, Japanese banks display relatively low rates of profitability as demonstrated, reflecting well-known historical patterns and business practices such as emphasis on long-term banking relationships and relatively low income growth [Oyama and Shiratori (2001), Loukoianova (2008)]. Among euro area banks, the most profitable ones over 2006-2010 were the two leading Spanish banks.

The performance of internationally active and diversified banks has been the subject of considerable empirical research [see CGFS (2010b)]. The international expansion of banks may improve their risk profile and increase their risk-adjusted return or profitability through geographical diversification and efficiency gains [see for example García-Herrero and Vázquez (2007)].

4 Recent trends in global banks' funding and liquidity management

Banks may fund themselves through a wide range of sources of financing, including deposits, equity and debt. A standard classification of funding models differentiates between wholesale and retail funding. The former includes central bank liquidity, interbank loans, with a prominent role for international interbank short-term US dollar funding, other short-term debt, most notably repurchase agreements (repos) and commercial paper (CP), and longer-term debt. Sometimes, equity financing is included in wholesale funding as well. Retail funding is essentially funding through customer deposits, such as current, savings and term deposits.

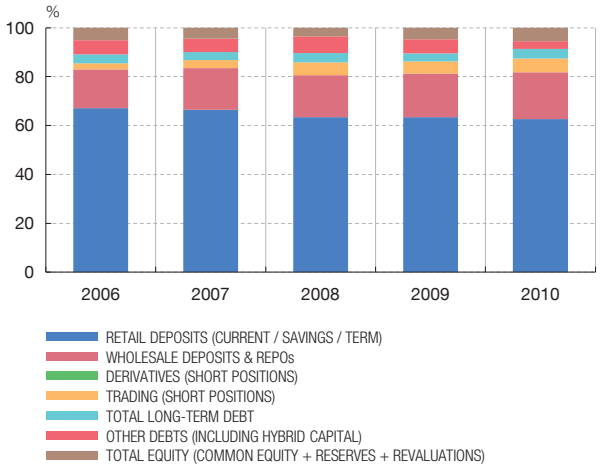
During the global financial crisis of 2007-2009, banks' funding models experienced rather unprecedented shocks, both in terms of access to funding and of cost. Large internationally operating banks had built up important maturity and currency mismatches between asset and funding structures [CGFS (2010a)]; in particular, specialised investment banks and investment-banking oriented universal banks had increased significantly their leverage [Kalemli-Ozcan et al. (2011)]. In the summer of 2007, tensions emanating from US subprime mortgage markets spilled over to banks' short-term wholesale funding markets and liquidity conditions deteriorated rapidly, particularly for highly leveraged banks. Contagion through interconnectedness of major global banks and their funding models led to sharp and unprecedented increases in interbank money market interest rates; in this setting, European banks had difficulty in obtaining US dollar liquidity [Domanski and Turner (2011)]. Moreover, US investment banks, which had become highly dependent on short-term wholesale funding – particularly on repo and CP financing – in the years prior to the financial crisis as a way to leverage their balance sheets, experienced severe dislocations in their funding [Adrian and Shin (2010)][8]. As a matter of fact, the collapses of both Bear

8 US investment banks' use of repo borrowing increased by almost one trillion dollar from 2004 to 2007, of which an increasing part consisted of overnight repos, i.e. repurchase agreements with a maturity of just one day [Financial Crisis Inquiry Commission (2011), Adrian and Shin (2010)].

SPECIALISED BANKS. FUNDING STRUCTURE 2006-2010 CHART 5

5.1 GOLDMAN SACHS. Specialised investment bank

5.2 MITSUBISHI UFJ (a) Specialised commercial bank



SOURCE: Bankscope.

a Mitsubishi UFJ reports according to the Japanese fiscal period. Thus, 2010 end-of-period data are reflected by the statements released on 31.3.2011.

Stearns and Lehman Brothers were highly related to their inability to access any longer these short-term funding markets, as investor confidence in their business models had eroded. These problems were not only circumscribed to US investment banks: the demise of Northern Rock in the UK was also caused by funding strains in short-term wholesale financing, on which its business model depended crucially [Shin (2009)].

The disruptions in short-term funding markets prompted central banks worldwide to inject substantial amounts of liquidity into the system and the Federal Reserve granted US investment banks unprecedented access to its liquidity facilities. All in all, central bank liquidity became a major source of wholesale funding. Moreover, after the collapse of Lehman Brothers some governments supported the funding of their globally operating banks, to the detriment of a level playing field in global banking.

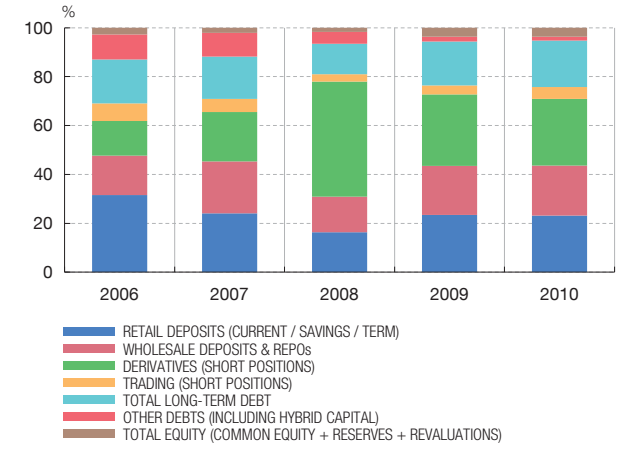
In order to analyse banks' funding models, we use detailed breakdowns of the funding of banks in our narrower sub-sample of ten banks. The breakdown includes retail deposits, short-term wholesale funding (interbank and repo financing), derivatives and trading positions, long-term debt, other debt and, for completeness sake, equity (Charts 5 to 7). Similar to our findings for asset structures, we find significant differences between the specific funding structures of these banks.

4.1 FUNDING STRUCTURE OF THE SPECIALISED BUSINESS MODELS

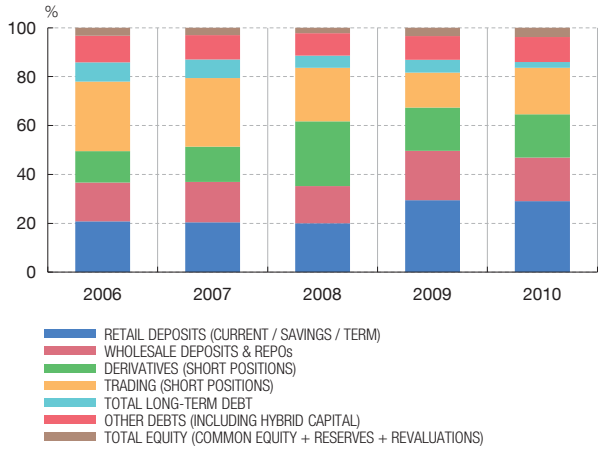
Goldman Sachs represents the specialised investment bank model, with essentially no deposit funding and significant reliance on short-term wholesale funding and other debt financing (Chart 5.1). In 2008, when the crisis hit especially the funding of investment banks, its interbank and repo funding experienced a considerable reduction (in relative terms), but in 2010 the shares of these financing sources had returned to pre-crisis levels. Furthermore, in 2009 and 2010 Goldman Sachs exposures to derivatives, in relative terms, were significantly lower than in 2008. Turning to the other specialised model, around 60% of Mitsubishi UFJ funding in 2010 depended predominantly on customer deposits, the largest figure in our sample, which has remained rather stable throughout 2006-2010; use of other sources of financing, such as short-term wholesale funding instruments, was rather stable as well, with little diversification to liability items such as trading, derivatives and long-term debt (Chart 5.2).

DIVERSIFIED INVESTMENT BANKS. FUNDING STRUCTURE 2006-2010 CHART 6

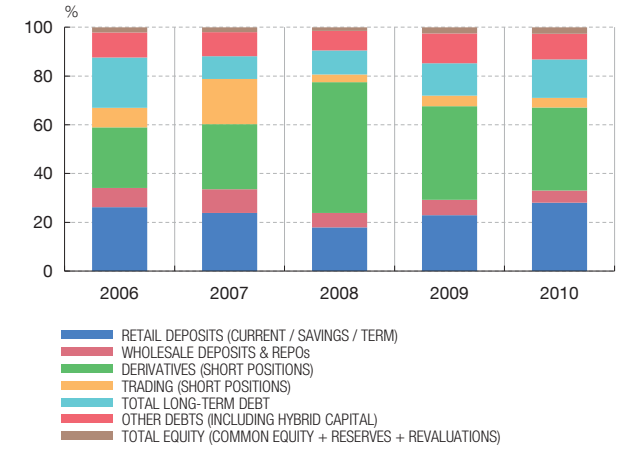
6.1 BARCLAYS BANK. Diversified investment bank



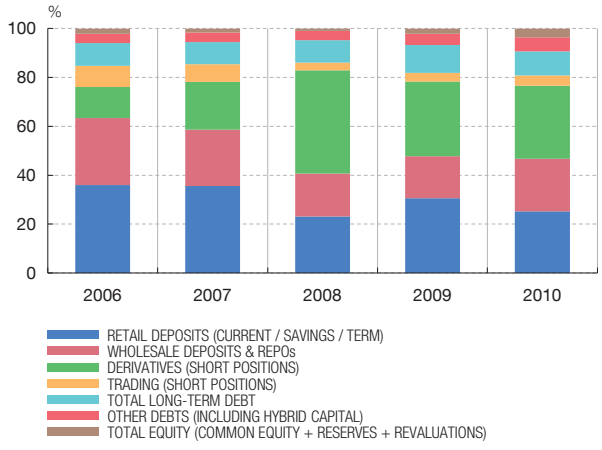
6.2 BNP PARIBAS. Diversified investment bank



6.3 DEUTSCHE BANK. Diversified investment bank



6.4 UBS. Diversified investment bank



SOURCE: Bankscope.

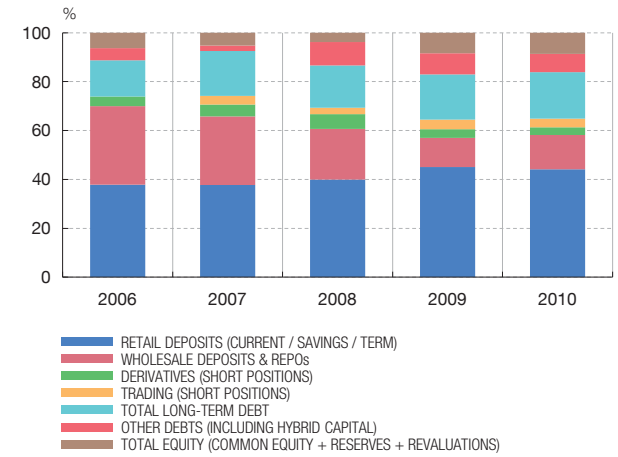
4.2 FUNDING STRUCTURE OF THE DIVERSIFIED OR UNIVERSAL BUSINESS MODELS

The funding structure of investment banking oriented universal banks displays a relatively modest share of customer deposits, at just 20%-30% of total funding in 2010, but maintained substantial liability positions in derivatives and trading, an important characteristic of this business model (Chart 6). These banks experienced major shifts in their funding structure after 2008. The most significant change was a rapid and substantial decline in derivatives in 2009 and 2010, which had increased very strongly in 2008, mostly due to market valuation adjustments of financial derivatives' trading positions resulting from the financial crisis. Regarding other important changes in these banks' funding structures, they all increased their use of customer deposit financing after 2008, and hence moved more towards the commercial banking oriented business model.

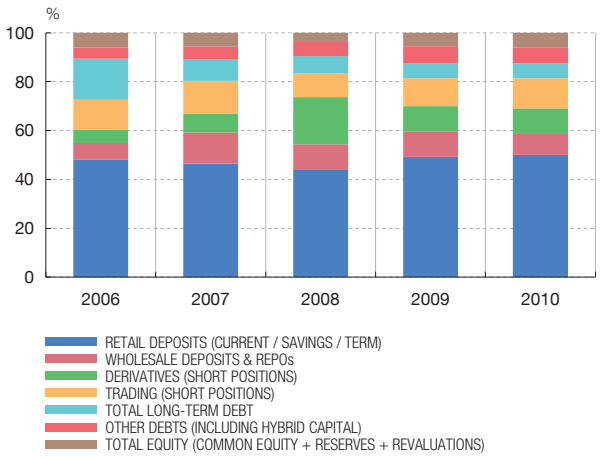
By contrast, the funding of the diversified commercial banks was characterised by a much larger share of customer deposits – of between 40% and 50% at end-2010 – (Chart 7). After 2008 they showed an ever greater recourse to deposit financing (in relative terms), at the expense of short-term wholesale funding. This latter development was a trend clearly visible among commercial banking oriented universal banks, including BBVA and HSBC, especially when comparing the figures for 2010 with those for 2006 or 2007.

DIVERSIFIED COMMERCIAL BANKS. FUNDING STRUCTURE 2006-2010 CHART 7

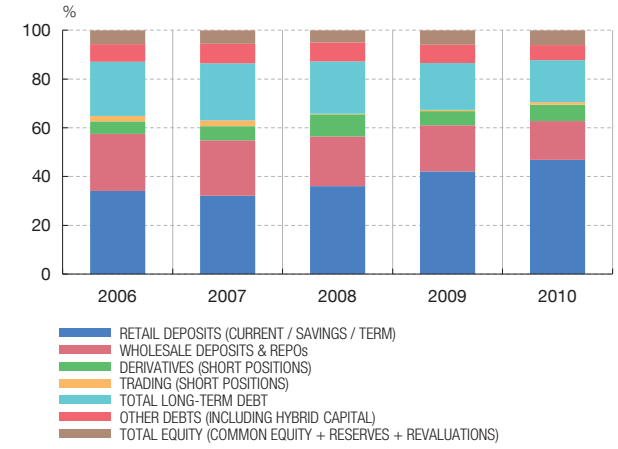
7.1 CITIGROUP. Diversified commercial bank



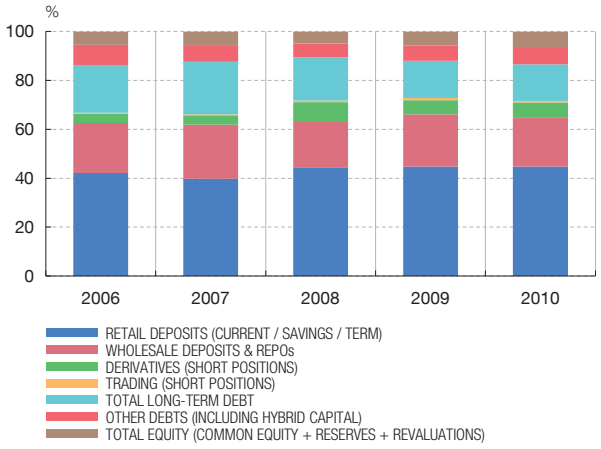
7.2 HSBC. Diversified commercial bank



7.3 BANCO SANTANDER. Diversified commercial bank



7.4 BBVA. Diversified commercial bank



SOURCE: Bankscope.

The trend towards greater recourse to customer deposit funding by both investment and commercially oriented universal banks is clearly visible in the evolution of loans to deposits ratios, shown in Annex 3. If this ratio is higher than one, a bank needs other funding sources to finance its loans. For a majority of banks, the loan to deposit ratio declined rather significantly during 2006-2010, and especially after 2008.

Overall, in the aftermath of the 2007-2009 global financial crisis large international banks' funding models have shifted towards more stable funding sources, with increasing reliance on customer deposits. At the same time, many banks – especially commercial banking oriented universal banks – reduced their recourse to short-term wholesale funding markets.[9] The crisis revealed important shortcomings in funding models mainly concentrated on short-term wholesale debt instruments.

The crisis also revealed the importance of intra group capital transfers which turned out to be an effective tool to support foreign affiliates in distress during the turmoil [Navaretti

9 The rating agencies generally view retail deposit funding as the most reliable and stable source of bank funding [see for example Fitch (2011)]. Deposit funding may be more beneficial also due to the existence of deposit insurance schemes, which mitigate the likelihood of bank runs and lower the attractiveness of market-based funding modes, regardless the quality of borrowers [Greenbaum and Thakor (1987)].

et al. (2010), Cetorelli and Goldberg (2011b)]. Large international operating banks seem to have considerable flexibility in moving around sizeable amounts of funding inside their global organisation, which contributes to their financial resilience and versatility [De Haas and Van Lelyveld (2010)]. Of course, this aspect is closely related to their funding and liquidity management practices. In the case of centralised banks, the funding of foreign subsidiaries relies on intra group loans from the parent bank which is the institution raising funds in financial markets. By contrast, the non-centralised liquidity management model is characterised by a high degree of financial autonomy, in which every subsidiary raises financing in financial markets under its own name and according to its own credit rating. The centralised model has certain advantages for banks in terms of economies of scale and cost efficiencies, but it also entails risks in terms of lighter monitoring by markets of banks' global funding operations, while being more prone to mispricing of risk as well. It is worth mentioning that, on the contrary, in the decentralized model funding is carried out by the final user of these funds, i.e. the subsidiary in need of funds which is the institution that taps markets under its own name and its own risk profile. As a consequence in the decentralized model it is easier for markets to accurately assign and price the risk involved in the funding than in the centralized one as in the latter case it is the matrix the institution that gets financing. In the wake of the 2007-2009 financial crisis, international banks have gradually increased funding through local sources of financing in the foreign markets where they operate [CGFS (2010b)]. At the same time, evidence suggests that global banks have increased centralisation of liquidity management, through tighter monitoring of liquidity buffers and short-term liabilities at their headquarters.

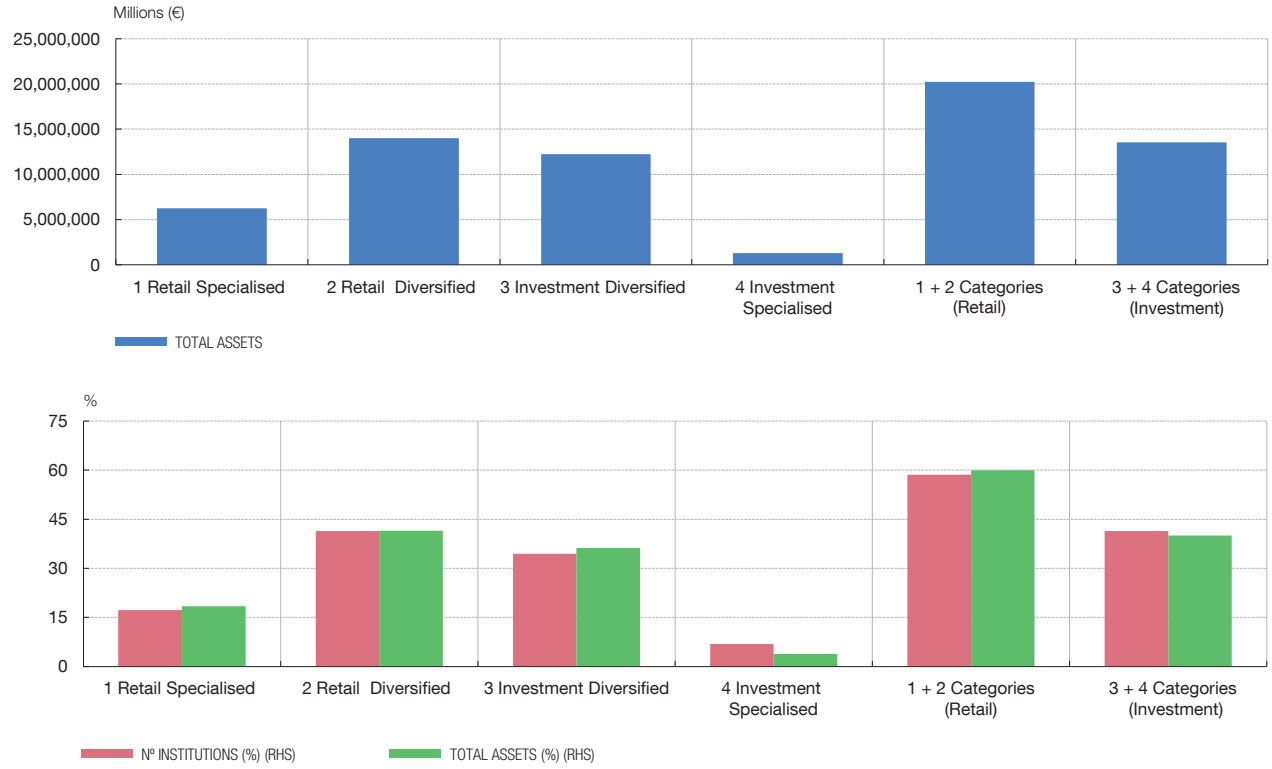
5 Conclusions, challenges and perspectives

The analysis presented in this article showed that overall the commercial banking oriented business models proved more resilient during the global 2007-2009 financial crisis when compared with the investment banking oriented models, due to their relatively modest exposures to trading and derivatives activities, their greater reliance on stable sources of funding through customer deposits and larger diversity of business lines which allows to compensate losses in some business segments with revenues from alternative sources [see also: Boston Consulting Group (2009), ECB (2010), Standard and Poor's (2011)]. When comparing the balance sheet structures of both specialised commercial banks and commercial banking oriented universal banks in 2006 and 2010, they show relatively similar composition. In contrast, the balance sheets of banks which adopted investment banking related business models, especially investment banking oriented universal banks, experienced rather significant changes in balance sheet structures during this period. More specifically, in 2008, at the height of the financial crisis, these banks showed strong increases in derivatives exposures on their liabilities side, which were significantly reduced in 2009 and 2010. In general, the weight of securities markets activities on the assets side and of trading exposures on the liabilities side fell and, at the same time, retail and wholesale lending activities, especially the use of customer deposit financing, increased. All in all, most investment banking oriented universal banks in our sample moved towards the business model of the commercial banking oriented universal bank after 2008.

The crisis and the related increase in the number of bank resolutions worked as important catalysts behind the longer-term trend of increasing the size of global banks. More structurally, economic strategies such as achieving significant economies of scope and scale may have been important drivers as well, both for the diversification of business activities, as evidenced by the dominant business model in our sample of the diversified or universal bank, and for increasing size of large global banks. At the same time, "too big

SIFIs TOTAL ASSETS ACCORDING TO BUSINESS MODELS

CHART 8



SOURCE: BIS and Bankscope.
NOTE: Exchange rate adjusted.

to fail" advantages such as lower funding costs for banks that are perceived systemically important cannot be excluded as an important reason behind the trend of larger international banking groups.[10]

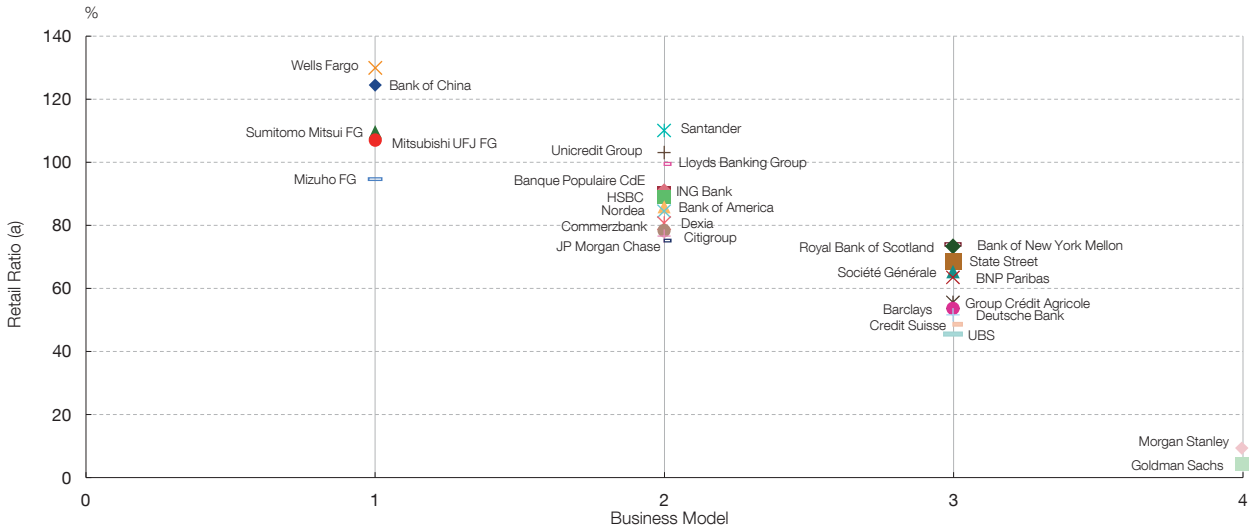
Regarding challenges and perspectives for the future, it is clear that the regulatory environment is the key challenge for banks' business models in the years ahead of us. The evidence shown through the previous sections strongly suggests that regulation aimed at reducing the likelihood and the impact of failure of any large internationally active financial institution should take into account the business model it conducts. In this regard, it might be opportune to look at several recent important regulatory initiatives such as those that address the systemic and moral hazard risks associated with large financial institutions and those aimed at isolating or ring fencing retail banking vis-à-vis investment banking.

The Basel Committee on Banking Supervision (BCBS) and the Financial Stability Board (FSB) have developed a framework to deal with the "too-big-to-fail" issue based on the two objectives.[11] First, the objective is to reduce the probability of failure by improving the loss

10 Demirgüç-Kunt and Huizinga (2011) show that systemically large banks display lower profitability and higher risk, suggesting that it is neither in the interest of their shareholders nor regulators for them to become too large relative to the size of their national economies. On the basis of these findings the authors suggest that regulatory intervention may be warranted were such an outcome to materialise, such as additional capital charges or in the extreme case downsizing or splitting up of business activities. However, size restrictions may have unwelcome effects as well as demonstrated in Dermine and Schoenmaker (2010), such as a lack of credit risk diversification in case size reduction would imply less internationally diversified banks.

11 See Basel Committee on Banking Supervision, "Global systemically important banks: assessment methodology and the additional loss absorbency requirement", November 2011.

SIFIs DISTRIBUTION ACCORDING TO BUSINESS MODELS CHART 9



SOURCE: Own elaboration with Bankscope data.

a Retail Ratio = (Net Customer Loans + Customer Deposits) / Total Assets.

absorbency of the financial institutions subjected to the regulations. Second, an additional goal is to reduce the impact of failure by improving global recovery and resolution frameworks.

To attain the first goal, the proposals entail new requirements for the banks that have been identified as systemically important at the global level. In particular, an additional loss absorption capacity is tailored to the impact of their default within a range from 1% to 2.5% of risk-weighted assets that should be met with common equity. In addition, the FSB and BCBS propose changes in national resolution regimes, additional requirements for resolvability assessment and for recovery and resolution planning and, last but not least, for more effective supervision. All these measures have been approved by the G20. Thus, institutions identified as Global Systemically Important Financial Institutions (G-SIFIs) will have to adapt to this regulation from 2012 onwards and its full implementation is targeted for 2019. Chart 9 represents our initial assessment of how the G-SIFIs identified by the BCBS fit in the categorization of business models described in this article. Chart 8 shows the size of balance sheets of institutions by category at end-2010.

The assessment methodology developed to identify the systemic importance of G-SIFIs follows a multiple indicator-based measurement approach that encompasses many dimensions of systemic importance and includes parameters such as cross-jurisdictional activity, size, interconnectedness, substitutability/financial institution infrastructure and complexity. On top of it, some qualitative information incorporated in the supervisory judgement completes the assessment.

Indeed the business model of institutions influences some of the categories aforementioned, especially those of interconnectedness and complexity. However, as shown in the chart, the list of institutions identified as G-SIFIs contains, according to our assessment, banks in all categories without a clear bias to any. In fact, at first glance it seems that the number of specialized investment banks is relatively low, though admittedly it might be explained by the failure of very noticeable ones in the crisis. As the data show, the relatively low prominence of investment banks is further exemplified by the (much) larger size of total assets of the more retail oriented banks.

Following the well-documented high resilience and stability of the retail banking model, which also find support in this article, some could argue that the G-SIFIs identification criteria do not take into account sufficiently the benefits of this model. However, in this regard, advocates of the BCBS approach may counter that the concept of "systemically important" is much richer than just focusing on different business models. In fact, the additional requirements imposed on any G-SIFI depend on its scoring insofar institutions are allocated into one out of five possible buckets (eg. riskier banks should be allocated to higher ranked buckets and thus be asked to fulfill stricter additional capital requirements). In any case, what it is clear is that regulation should and in fact has taken into account (sufficiently or not) idiosyncrasies associated with the different business models of banks.

In the regulatory arena, two national initiatives that may impinge on the business model of banks are also worthwhile to be commented. The first one relates to the recommendations of the Independent Commission on Banking for UK banking (ICB report), especially those ones directed at institutions that combine retail services with global wholesale and investment banking operations. The second one has to do with certain regulations proposed in the US to implement the Volcker rule and in particular to its unintended consequences and extraterritorial effects.

The ICB report proposes ring-fencing retail banking activities that would make it easier and less costly to effectuate the resolution of any banking institution, would allow for targeted policies towards banks in difficulties and would minimize the need for public support. Besides, according to the report, structural separation of activities should help insulate retail banking from external shocks. Interestingly, the report is very favorable to business models that provide a great degree of financial autonomy to subsidiaries versus centralized models. It is important to note that the ICB report does not ask for complete separation of activities and institutions could maintain the advantages derived from economies of scale. Moreover, according to the ICB, the recommendations proposed are neutral with regard to the various business models of UK banks.

Having said all that, the report advocates additional loss absorbency requirements for large UK retail banks (equity capital of at least 10% of risk weighted assets, which exceeds the Basel III level for G-SIFIs) and acknowledges that the proposed reforms affect only a relatively small proportion of wholesale and investment banking activity in the City. The argument for the latter is to avoid any adverse effect on the competitiveness of UK banks versus foreign banks. The ICB view on the need for additional burdens imposed on large retail oriented banking groups is defended as a compensation for the possible "too big to fail" implicit subsidy these institutions benefit from. This reasoning might implicitly endorse the belief that these large and key retail banks will be rescued by the public sector in case it would be needed, whereas small retail banks and wholesale and investment oriented-banks would be allowed to fail. The merits of the proposals in the ICB report are indeed considerable. However, challenges remain with regard to their implementation and it might be argued whether the "no bail out" assumption for large investment banks versus large retail ones will be followed in case of a financial crisis with systemic effects.

The US approach to isolate retail banking from other activities that is embedded in the Volcker rule is quite different, though in essence its objectives are close to those of the ICB proposals. In a nutshell the Volcker rule prohibits any link between retail business (which benefits from FDIC deposit insurance) and other activities, particularly proprietary trading, prime brokerage business for hedge funds or risk capital activities, except for exceptions

to be detailed. As a consequence, it either interdicts any relation or it imposes the compliance with severe information requirements to qualify for the exception. The proposed US regulation clearly differentiates among business models and it interferes with the relations between retail and investment business. This is an issue particularly relevant for large institutions and among other things it regulates the links between the subsidiaries of non-US banks active in the US with their parent banks. This issue may have severe potential consequences for the activities carried out by those foreign institutions and in fact is under review by US authorities. Some private institutions (among those the Institute for International Finance, IIF) have called for a sufficient degree of coordination regarding those regulatory initiatives with extraterritorial consequences.

In addition, regulatory developments may induce the movement of specific business lines out of banks – both commercial and investment banks – and into the non-bank financial sector, such as hedge funds, private equity and asset managers. This may provide further impetus to the development of the so-called Shadow Banking System. Moreover, regulatory changes may lead to a further consolidation of large globally active banks, as scale and scope economies, infrastructure and distribution channels will become more important to maintain competitive positions [Morgan Stanley and Oliver Wyman (2011)]. This could buttress the longer-term trend towards bigger size of large international banking groups and higher industry concentration that we observe in our analysis. With respect to perspectives for funding structures, the prevailing view is that the greater recourse to deposit financing observed in the aftermath of the financial crisis in 2008 may continue for the foreseeable future, implying greater competition for deposits between banks (ECB, 2009 and 2010). This trend may entail new challenges as well, as enhanced competition in deposit markets may lead, according to certain academic research, to an increase in risk, if banks compete for market power offering higher deposit rates [Craig et al. (2010)].

All in all, and despite the recent financial crises, international banking has not lost its dynamism and continues to provide important amounts of financing, especially to the fastest growing economies in the world. These international activities of globally active banks are of considerable strategic importance in their well-diversified business portfolios and form a traditional source of revenues on their balance sheet. Indeed, the diversity of business models for banks active internationally is welcome. However, as shown in the article, the so-called universal commercial banking oriented business model has shown a particularly high degree of stability and resilience to the international financial crisis, an issue that may have to be taken into account in pending regulation.

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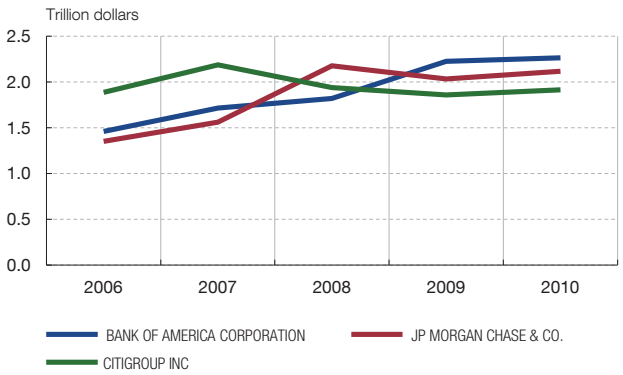
1.A US COMMERCIAL BANKS



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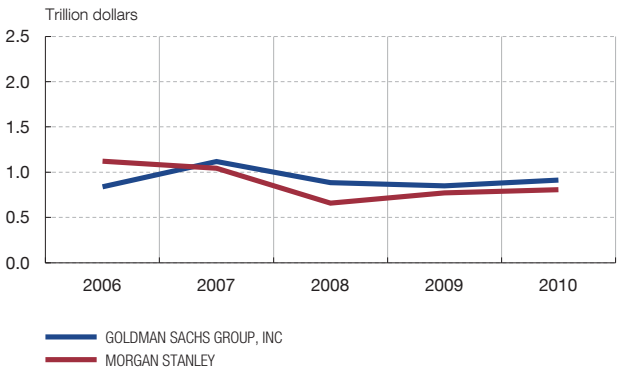
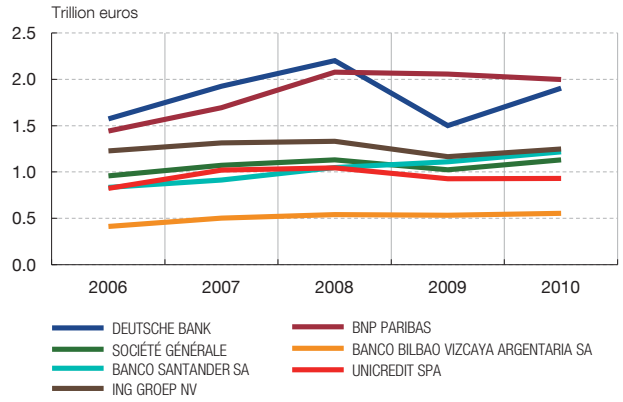


1.C EUROZONE BANKS



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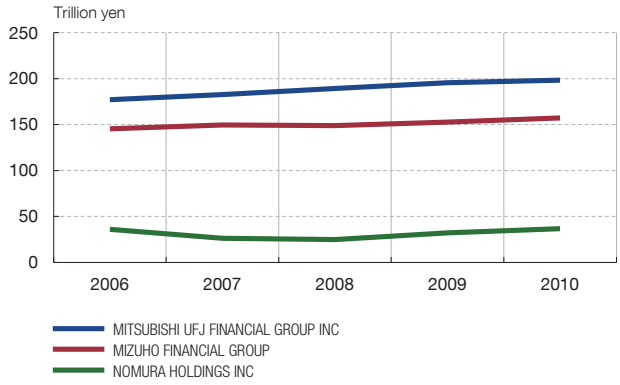

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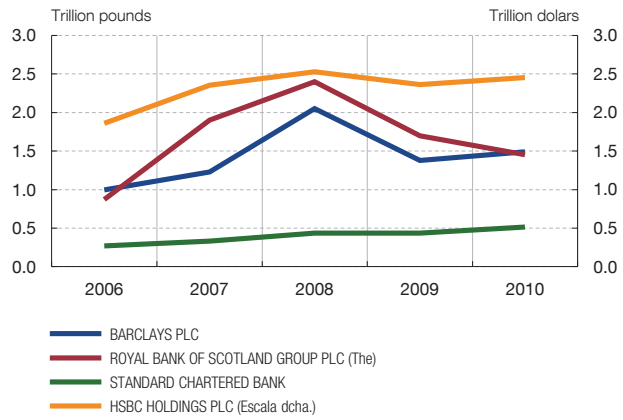

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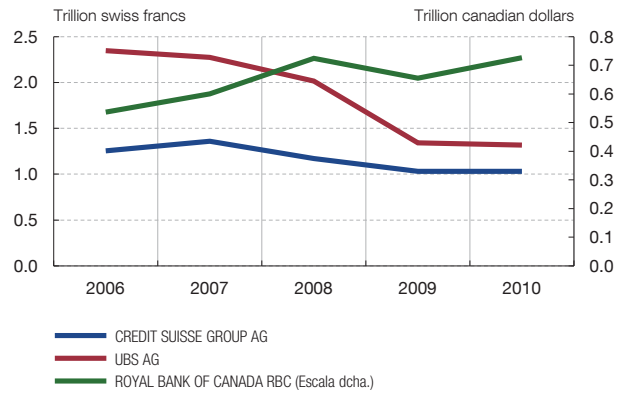


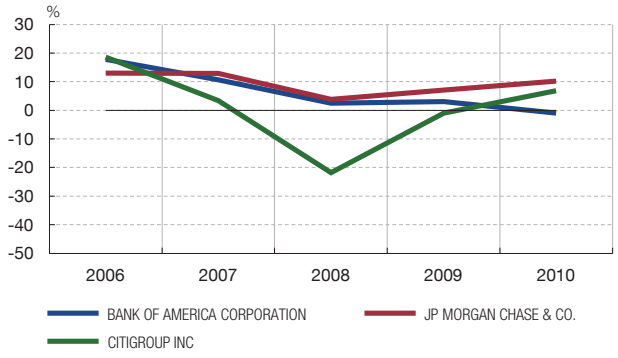
SOURCE: Bankscope.

a Japanese institutions (Chart 1.d) report in accordance with the japanese fiscal year. Thus, 2010 closing data are reflected by the statements released on 31.3.2011.

b Barclays Plc and The Royal Bank of Scotland Group Plc report in local currency (GBP), whereas HSBC Holdings Plc and Standard Chartered publish their consolidated statements in american dollars (USD).

RETURN ON AVERAGE EQUITY (ROAE)

2.A US COMMERCIAL BANKS



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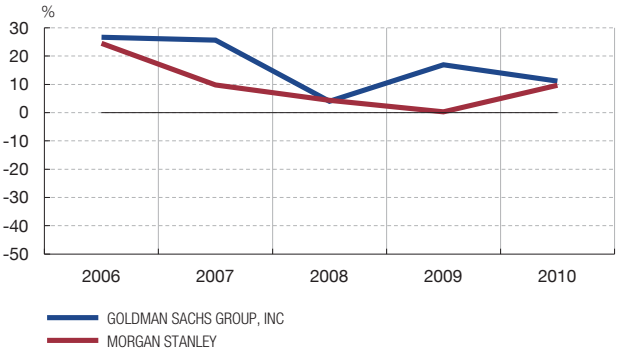

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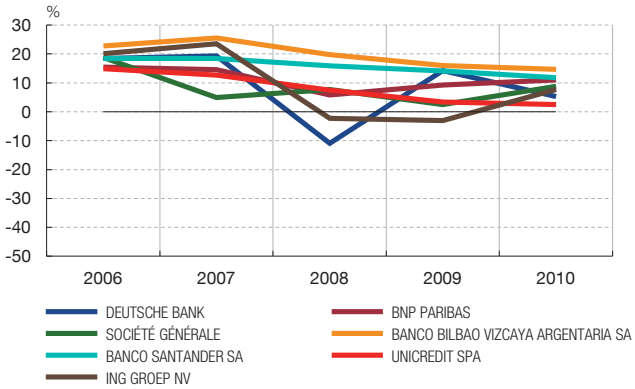

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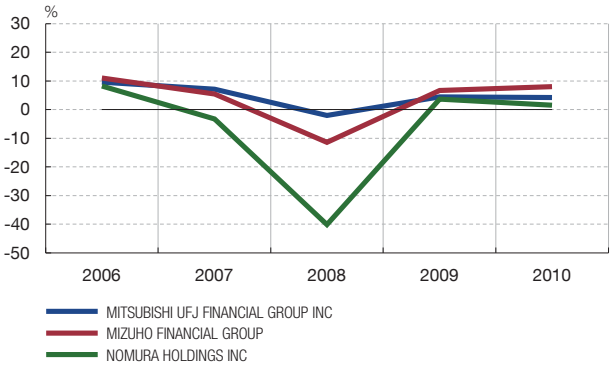

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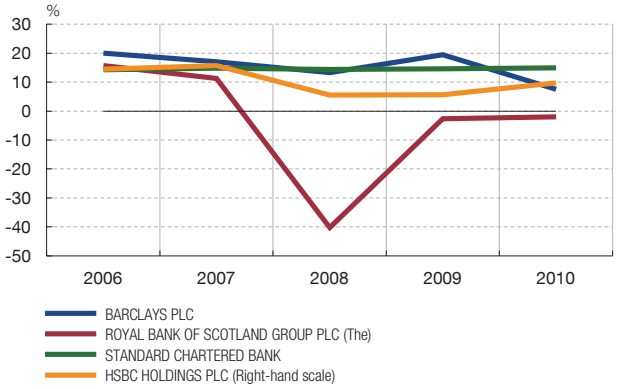

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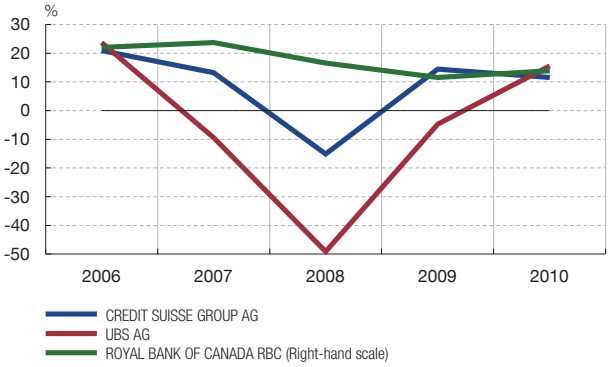

SOURCE: Bankscope.

a Japanese institutions (Chart 2.d) report in accordance with the japanese fiscal year. Thus, 2010 end-of-period data are reflected by the statements released on 31.3.2011.

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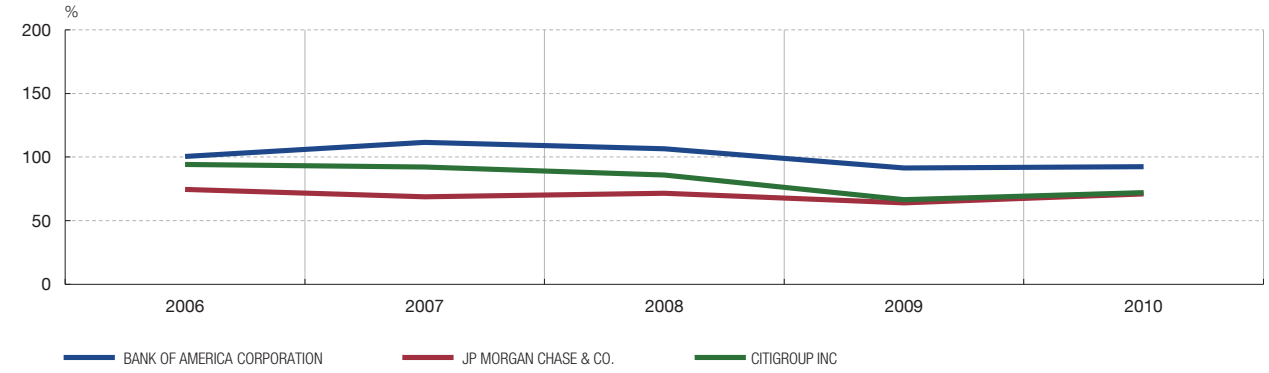

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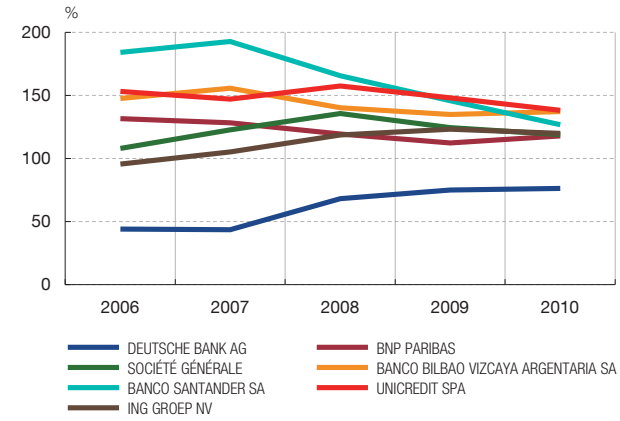

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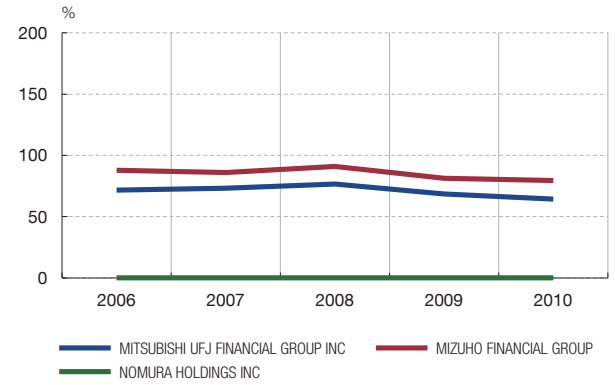
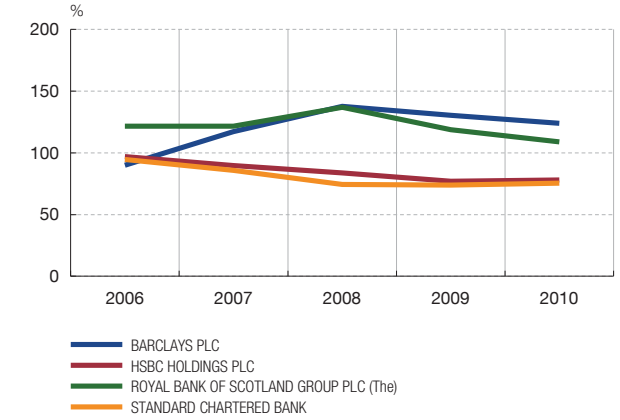
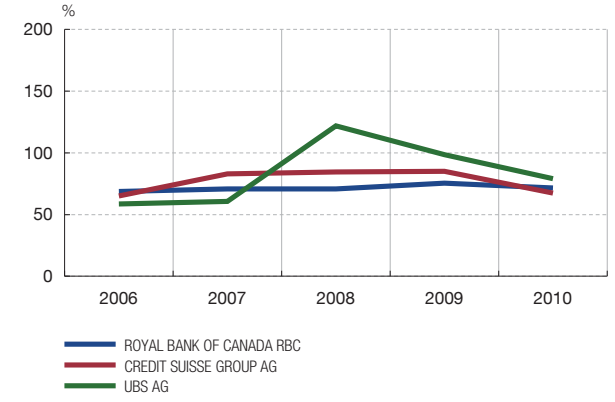


3.D UK BANKS



3.E OTHER INDUSTRIALISED COUNTRIES (BANKS)



SOURCE: Bankscope.

a Japanese institutions (Chart 3.c) report in accordance with the japanese fiscal year. Thus, 2010 end-of-period data are reflected by the statements released on 31.3.2011.

IDENTIFICACIÓN Y EVOLUCIÓN DE LOS CICLOS DE CRÉDITO EN LAS ECONOMÍAS AVANZADAS

Rebeca Anguren Martín [*]

(*) Rebeca Anguren Martín pertenece a la Dirección General Adjunta de Asuntos Internacionales del Banco de España. El trabajo se ha beneficiado de los comentarios recibidos de Jesús Saurina. Asimismo, la autora agradece los comentarios de Enrique Alberola, Emiliano González-Mota y José Manuel Marqués Sevillano, así como la ayuda recibida de Emilio Muñoz de la Peña. El presente artículo se basa en el documento de trabajo de R. Anguren (2011), *Credit cycles: Evidence based on a non linear model for developed countries*.

IDENTIFICACIÓN Y EVOLUCIÓN DE LOS CICLOS DE CRÉDITO EN LAS ECONOMÍAS AVANZADAS

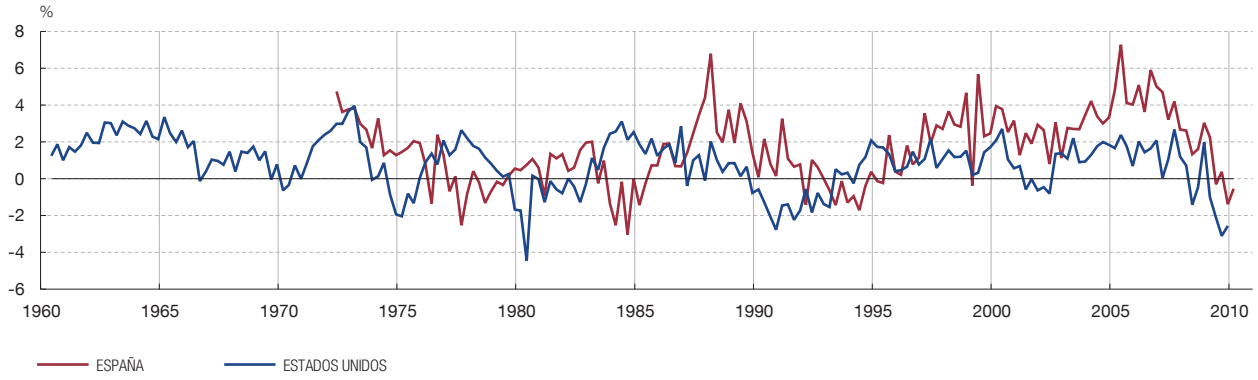
El presente artículo se centra en uno de los campos de estudio que han adquirido especial relevancia tras la última crisis financiera: el ciclo de crédito. En particular, se propone el análisis de este haciendo uso de una variación del Markov con regímenes cambiantes propuesto por Hamilton (1989). A través de este modelo se identifican las fases alcistas, intermedias y bajistas en el crecimiento del crédito de diversos países desarrollados. La distinción entre las distintas fases es resultado de la estimación, evitando arbitrariedades en la captación de los distintos episodios. Por otra parte, los resultados del modelo permiten estudiar el ciclo de crédito tanto a nivel conjunto como a nivel nacional. Las fases bajistas identificadas coinciden en numerosos casos con episodios de crisis bancaria y/o financiera identificados previamente en la literatura, subrayando los paralelismos entre el ciclo de crédito y el estado de los sistemas bancario y financiero. Asimismo, una comparación de las fases bajistas de Estados Unidos con las recesiones señaladas por el NBER muestra una estrecha relación entre el ciclo de crédito y el ciclo económico. Por último, se observa una cierta sincronización entre los ciclos de crédito de las economías avanzadas, siendo destacado el papel de Estados Unidos en este contexto.

1 Introducción

El crédito bancario al sector privado de las economías desarrolladas ha estado sujeto a fluctuaciones cíclicas durante los últimos 50 años, alternando episodios de expansión con períodos de crecimiento muy reducido o incluso negativo, en términos reales, como puede observarse en el gráfico 1 para los casos de Estados Unidos y de España. Con anterioridad a la última crisis financiera, numerosos países experimentaron un fuerte crecimiento del crédito. Esto sugiere que un seguimiento detallado de su ciclo puede ayudar a explicar o anticipar mejor la evolución de otras variables en la economía [como el crecimiento económico: Borio *et al.* (2001)] y constituir una herramienta útil para identificar situaciones de riesgo para la estabilidad financiera, dada su estrecha relación con la salud del sistema financiero y bancario [véanse, por ejemplo, Kaminsky y Reinhart (1999), Borio y Lowe (2002a, 2002b y 2004) y Borio y Drehmann (2009)].

CRÉDITO BANCARIO AL SECTOR PRIVADO — GRÁFICO 1

DATOS EN TÉRMINOS REALES. TASA INTERTRIMESTRAL



FUENTES: Fondo Monetario Internacional (IFS) y Banco de España.

Este artículo presenta los resultados de Anguren (2011), propuesta que contribuye a este campo de estudio a través de la modelización de los ciclos de crédito de doce economías desarrolladas haciendo uso de un modelo econométrico que ha demostrado poseer ciertas ventajas en el análisis de ciclos: el modelo de Markov con regímenes cambiantes. El artículo se organiza del siguiente modo. En la sección siguiente se describen brevemente la naturaleza y los determinantes de los ciclos de crédito, haciendo una revisión de diversas teorías propuestas en este campo de investigación y señalando, además, su relación con el ciclo económico y con el estado del sistema bancario. En la sección 3 se presentan algunas de las metodologías que pueden ser utilizadas para el análisis del ciclo de crédito. En la sección 4 se describen los resultados obtenidos de la estimación de un modelo de Markov con regímenes cambiantes, presentando los ciclos de crédito identificados de forma individual y conjunta. Posteriormente, en la sección 5 se estudian los paralelismos que presentan los ciclos de crédito con el estado de la economía y con la evolución de las encuestas de préstamos bancarios. Finalmente, se exponen las conclusiones del trabajo.

2 Naturaleza y determinantes de los ciclos de crédito

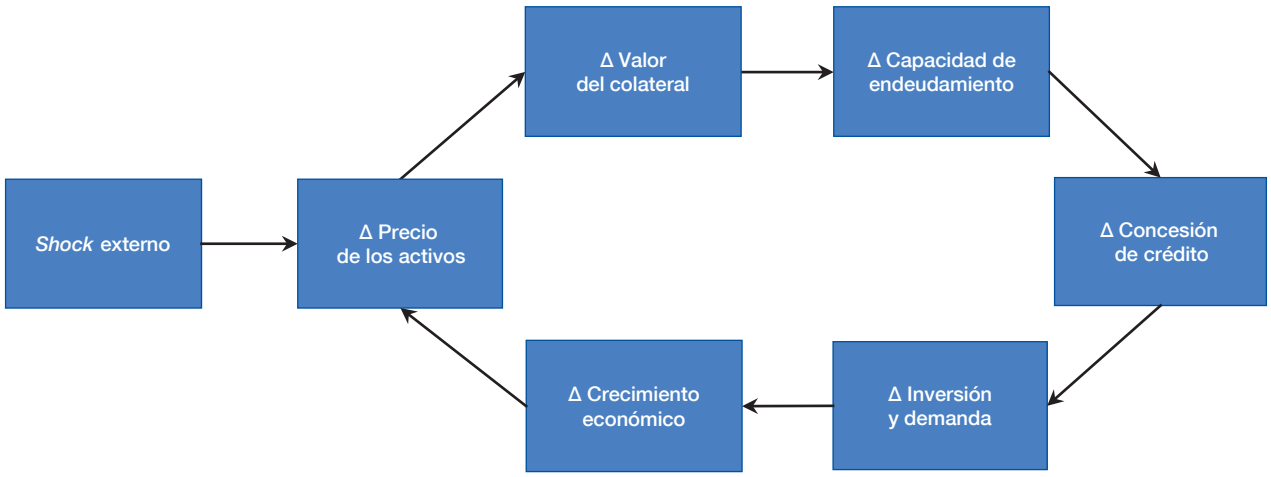
En la actualidad existe un consenso bastante asentado sobre el carácter cíclico de la evolución del crédito. Estas fluctuaciones están estrechamente relacionadas con el ciclo económico, pudiendo actuar como amplificador durante episodios tanto de expansión como de contracción de la actividad [Bordo *et al.* (2001)]. Sin embargo, la naturaleza de las relaciones entre la actividad económica y el crédito no son evidentes, por lo que no resulta sencillo identificar ni el sentido de la causalidad ni los canales subyacentes.

En primer lugar, la evolución de la actividad económica afecta al ciclo de crédito. En este contexto, cambios en la demanda de financiación, derivados de una ralentización de la actividad o de un empeoramiento en las condiciones y/o perspectivas de negocio, reducen la actividad crediticia impulsando una fase bajista del crédito. Mientras que esta relación enfatiza el lado de la demanda, el ciclo económico también puede influir en la oferta de crédito: en un entorno económico contractivo, la calidad crediticia de los potenciales prestatarios tiende a reducirse, induciendo un comportamiento más conservador por parte de las entidades a la hora de conceder préstamos (canal de riesgo de crédito o *credit risk channel)*.

Existen otros factores que pueden afectar a la oferta de crédito y, a través de esta, al crecimiento económico, lo que implicaría una causalidad del crédito a la actividad. Así, si las entidades bancarias son una fuente importante de financiación para los hogares y empresas, un *shock* específico que afecte a la disposición de las entidades a conceder crédito (por ejemplo, variaciones en su coste de financiación, en su nivel de capital, en los requisitos regulatorios o cambios en la calidad percibida de los prestatarios) incide en las condiciones de acceso a este tipo de financiación. Esto afecta a la capacidad para consumir e invertir en la economía, dando lugar a una aceleración o desaceleración en el crecimiento económico (canal de crédito o *bank lending channel)* [véase Gordon y Winton (2003)][1].

1 Otras teorías apuntan a que los ciclos de crédito tienen un origen propio no ligado a la situación económica y, en concreto, se basan en los fallos de coordinación entre prestamistas [véase Gordon y He (2008)]. En virtud de esta teoría, los ciclos de crédito resultarían de un proceso de colusión entre las entidades bancarias para mantener unos tipos de interés poco competitivos, acordando de forma implícita reducir los fondos destinados a investigar la calidad crediticia de los posibles prestatarios. Eventuales desviaciones en el comportamiento de los prestamistas (adopción de políticas más rigurosas en la concesión de crédito reflejadas, por ejemplo, en una reducción de la tasa de morosidad) inducirían al resto de entidades a restringir las condiciones aplicadas para la concesión de préstamos de forma generalizada, dando lugar a una contracción del crédito bancario a nivel agregado.

DESCRIPCIÓN DEL CÍRCULO GENERADOR DEL ACELERADOR FINANCIERO ESQUEMA 1



FUENTE: Banco de España.

La bidireccionalidad de la relación entre ciclo de crédito y ciclo económico ha sido subrayada por algunos autores, como Bernanke y Gertler (1989) o Kiyotaki y Moore (1997), que consideran el ciclo de crédito como acelerador financiero del ciclo económico. Bajo esta teoría, las fluctuaciones en el crédito vendrían explicadas, en buena medida, por los cambios en el valor de los activos utilizados como colateral en los préstamos. En una parte importante de los contratos de préstamo, el prestatario aporta un activo como colateral que garantiza la devolución de la deuda y señaliza su calidad crediticia frente al prestamista. Por ejemplo, en el caso de los préstamos hipotecarios el colateral vendría dado por la vivienda, mientras que en los créditos a empresas el colateral estaría representado, bien por los activos aportados, o bien por el valor de liquidación de la empresa. El valor de los activos aportados como garantía está sujeto a variaciones —inducidas, entre otras, por la actividad o perspectivas económicas— que originan el comportamiento cíclico del crédito (véase esquema 1). En períodos de expansión económica, o como consecuencia de un *shock* externo, el valor del colateral aumenta, expandiendo la capacidad de obtener financiación por parte de los prestatarios. El mayor dinamismo en la actividad crediticia fomenta la inversión y permite financiar aumentos en la demanda por parte de los hogares, impulsando el crecimiento económico y presionando al alza el valor de los activos. Cuando este círculo virtuoso toca a su fin (por ejemplo, a causa de un *shock* externo sobre el precio de los activos), la situación se invierte, dando lugar a un proceso de retroalimentación en el que el descenso del crédito impulsa una menor actividad económica.

Bordo *et al.* (2001) sugieren que la teoría del acelerador financiero no es suficiente para explicar las fuertes fluctuaciones del crédito y del crecimiento económico como consecuencia de períodos de inestabilidad financiera. Estos autores sostienen que los errores de valoración del riesgo son la fuente fundamental que explica los cambios extremos en el ciclo de crédito y su papel amplificador de los ciclos económicos. El riesgo tiende a ser infravalorado en episodios de expansión, lo que explica los *booms* de crédito y el aumento de la fragilidad del sistema financiero. Esta infravaloración vendría dada por una relajación de las políticas de concesión de crédito, una sobrevaloración de activos, una contracción de diferenciales no basada en fundamentales y unos niveles de capital relativamente reducidos. En este sentido, Jiménez y Saurina (2006) encuentran evidencia en el caso de España sobre la relajación de los estándares de crédito requeridos por las entidades durante episodios de expansión atendiendo tanto a la monitorización de prestatarios como a los requerimientos

de colateral. De forma alternativa, en épocas de recesión el riesgo tiende a ser sobrevalorado, contrayendo el acceso a la financiación de forma relativamente más severa durante períodos más prolongados, lo que acaba agudizando los parones en la actividad económica. Como puede deducirse de esta explicación, la evolución del crédito bancario viene determinada en gran medida por estos cambios cíclicos en la valoración del riesgo. Estas fluctuaciones, además, acentúan las dinámicas del ciclo económico y afectan directamente a la salud de los sistemas financiero y bancario.

3 Identificación de ciclos. El modelo de Markov con regímenes cambiantes

Existen diversas técnicas que permiten la identificación del ciclo de crédito bancario, siendo especialmente útiles las herramientas analíticas utilizadas para el estudio de los ciclos económicos. Del mismo modo que ocurre en la identificación de episodios de recesión y de expansión económica, los distintos instrumentos planteados para la caracterización del ciclo de crédito presentan ciertas ventajas y desventajas, que deben ser tenidas en cuenta a la hora de aplicarlos.

En primer lugar, el filtro lineal de Hodrick y Prescott (1997), filtro HP, es uno de los más comunes en la identificación de ciclos económicos. Este se basa en la caracterización del ciclo a través de las desviaciones de una determinada variable en torno a su tendencia [Aykut *et al.* (2010)[2]]. Este filtro es capaz de distinguir entre la tendencia de la serie, cuya estimación depende de un parámetro que determina si es más próxima a una línea recta o a la propia evolución de la serie, y las fluctuaciones cíclicas respecto a la misma que presenta la variable. Si bien el filtro HP presenta la ventaja de su simplicidad a la hora del cálculo, es importante tener en cuenta la necesidad de elegir a priori el parámetro que determina la evolución de la tendencia, lo que implica un cierto grado de arbitrariedad. Asimismo, presenta un problema de sesgo en la estimación de la tendencia al final de la muestra, dado el peso que concede a los últimos datos disponibles para la estimación de la misma [French (2001)].

Otro tipo de técnicas se basa en el seguimiento de los cambios en los niveles de la serie. Esto es, en lugar de extraer la tendencia para separar el componente cíclico, se estudia directamente la evolución de la serie identificando las distintas fases del ciclo de acuerdo con un conjunto de requisitos a través de algoritmos estadísticos, como el de de Bry y Boschan (1971). Estos algoritmos se basan en la identificación de los máximos y mínimos que presenta una determinada variable a lo largo de cierto período de tiempo, en función de determinadas condiciones impuestas de forma subjetiva[3]. El uso de esta técnica presenta la ventaja de que la determinación del ciclo no depende de la inclusión de nuevos datos (como en el caso del filtro HP) y, además, es fácilmente replicable. Sin embargo, conlleva un notable componente de valoración subjetiva a la hora de determinar la duración de las distintas fases.

Un enfoque cercano a la identificación de ciclos es el análisis de eventos, centrados en la identificación de episodios de crisis bancarias o financieras que coinciden con períodos de crisis de crédito. La mayoría de estas propuestas se basa en la identificación de crisis,

2 Aykut *et al.* (2010) utilizan dos métodos diferentes para identificar fluctuaciones en los flujos de deuda privada a países emergentes y en vías de desarrollo. El primero aplica el filtro HP en una primera etapa, para después identificar épocas de expansión como aquellos doce meses precedentes a los máximos locales de la serie obtenida (y fases contractivas los doce meses posteriores). En segundo lugar, identifica episodios de *boom-bust* utilizando como umbrales +/– 1 y +/– 0,5 desviaciones estándar de la serie respecto a su media histórica.

3 Por ejemplo, Claessens, Kose y Terrones (2011) imponen que la duración de un ciclo completo, es decir, el número de períodos que tarda la serie en completar la fase de expansión y la fase de contracción, sea de al menos cinco trimestres, y la duración de una determinada fase sea mayor o igual a dos trimestres.

que se determinan cuando la evolución de distintas variables que describen el estado del sector financiero cumple determinadas condiciones extremas. Por ejemplo, Laeven y Valencia (2008) identifican episodios de crisis bancarias sistémicas para una muestra amplia de países entre 1970 y 2007, haciendo uso de una combinación de datos cuantitativos con una valoración subjetiva de la situación. Por otra parte, Bordo *et al.* (2001) presentan una base de crisis financieras, cambiarias y bancarias, de modo que estas últimas corresponden a períodos donde las tensiones financieras erosionaron la mayor parte o todo el capital bancario del sistema[4]. Si bien este enfoque de análisis de eventos puede ser útil en contextos como el actual, no es estrictamente un análisis de ciclos y, como los anteriores, el componente subjetivo es elevado.

Dadas las limitaciones de los métodos anteriores, se ha planteado el uso de técnicas econométricas para identificar las distintas fases o regímenes de la actividad, destacando entre ellas las basadas en el conocido como «modelo de Markov con regímenes cambiantes». Este modelo fue introducido por Hamilton (1989) tomando como ejemplo el producto nacional bruto (PNB), con el objetivo de caracterizar el ciclo económico en Estados Unidos. El argumento básico descansa en el hecho de que las series económicas muestran cambios drásticos en su evolución. Estas variaciones vendrían dadas por alteraciones en el estado de la economía, como, por ejemplo, un episodio de inestabilidad financiera, cambios de política económica u otras perturbaciones. Lo que Hamilton sugiere es que las alternancias periódicas entre tasas de crecimiento positivas y negativas del PNB real son una característica recurrente del ciclo económico. De este modo, la evolución de esta serie puede ser utilizada para identificar a través de un criterio objetivo episodios de recesión económica.

La estimación de este modelo permite cuantificar la probabilidad de que la actividad —o cualquier otra variable— se encuentre en una u otra fase, las cuales presentan distintas características (por ejemplo, en su media o varianza). Asimismo, este modelo permite la inclusión de dos o más estados, permitiendo añadir de este modo fases adicionales que captarían aquellos momentos donde la evolución se asemeja más a períodos de crecimiento intermedios o a períodos de evolución extrema[5]. La asignación a cada uno de los estados se realiza a través de una simple comparación entre dichas probabilidades. Así, por ejemplo, si —como se hará en el ejercicio posterior— se consideran tres fases (alcista, intermedia o bajista), el crecimiento de una variable se encontrará en una fase alcista siempre y cuando la probabilidad de ese estadio sea superior a la probabilidad de encontrarse en cualquiera de los otras dos.

Esta técnica, a pesar de presentar un coste computacional relativamente más elevado, tiene la ventaja de que permite la identificación las distintas fases sin necesidad de introducir valoraciones subjetivas. Además, cabe notar que el modelo de Markov ha demostrado tener cierto éxito en la caracterización de los ciclos reales. Hamilton (1989) muestra cómo los episodios de recesión captados por el modelo coinciden con aquellas recesiones aceptadas por consenso en el ámbito económico[6].

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4 Reinhart y Rogoff (2008a, 2008b) ofrecen una síntesis de las crisis bancarias en una serie de países con un nivel de ingresos medio-alto, determinando los episodios de crisis bancaria a las siguientes condiciones: 1) una huida de los depósitos que da lugar al cierre, fusión o adquisición de una o más instituciones financieras, y/o 2) el cierre, fusión, adquisición o intervención de una institución financiera destacada, marcando el inicio de una cadena de eventos similares.

5 Para una descripción sobre la selección del número de regímenes considerados, véase Anguren (2011).

6 Según las identifica la organización no gubernamental de economistas estadounidense *National Bureau of Economic Research* (NBER).

4 El ciclo de crédito en las economías desarrolladas

En esta sección se presentan los resultados del estudio de Anguren (2011). En particular, se propone la identificación de las distintas fases a través de un modelo de Markov con regímenes cambiantes para doce países desarrollados durante el período 1960-2010. Los países incluidos en la estimación son: Alemania, Bélgica, Canadá, España, Estados Unidos, Francia, Holanda, Italia, Japón, Reino Unido, Suecia y Suiza.

Los datos utilizados en la estimación corresponden a tasas de crecimiento del crédito bancario, en términos reales, entre los años 1960 y 2010, constituyendo un panel incompleto donde el horizonte temporal para cada país viene determinado por la disponibilidad de datos. En concreto, el estudio se centra en la financiación destinada al sector privado, excluyendo la dirigida al sector público, ya que esta última presenta variaciones idiosincrásicas cuya relación con la economía y con el sector financiero no es tan clara. Las series de crédito en términos nominales provienen de la base de datos *International Financial Statistics* (IFS) del Fondo Monetario Internacional y se deflactan haciendo uso del deflactor del producto interior bruto, o del índice de precios de consumo cuando el primero no está disponible (ambas se obtienen también de la base del IFS). Las tasas de crecimiento utilizadas corresponden a cambios intertrimestrales, ya que esta frecuencia permite evitar retrasos en la identificación de los puntos de giro en el ciclo, mientras que el uso de series de tasas interanuales diluye, por construcción, el efecto de los cambios en la serie trimestral.

La estimación del modelo se realiza de forma conjunta, incluyendo todos los países de la muestra. Este punto resulta de especial interés en aquellos casos en los que el ciclo bajo estudio presenta fases relativamente amplias y el horizonte temporal considerado puede carecer de la variabilidad necesaria para asegurar que los parámetros son estimados de forma eficiente. La estimación del modelo de forma conjunta se realiza bajo el supuesto de que cada una de las series, una vez estandarizada, es una realización independiente del mismo proceso [véase Cerón y Suárez (2006)]. Es precisamente a través de la estandarización de las series como se asume que los componentes idiosincrásicos nacionales son eliminados de la serie, de modo que se pueden modelar de forma conjunta.

En concreto, la especificación del modelo se realiza sobre las series estandarizadas del crecimiento intertrimestral del crédito bancario (Δd_{it}):

$$\Delta d_{it} = \frac{(d_{it} - \alpha_i)}{\sigma_i}, \qquad [1]$$

donde α_i y σ_i representan la media y en varianza no condicionadas de la serie, las cuales se asume que contienen las características particulares de cada país, de modo que a través de la estandarización se obtendría el componente puramente cíclico de la serie. El modelo que se ha de estimar es el siguiente:

$$\Delta d_{it} = \mu(s_{it}) + \varphi(\Delta d_{it-1} - \mu(s_{it-1})) + \epsilon_{it}, \qquad \epsilon_{it} \sim iidN(0,1) \qquad [2]$$

La variable latente s_{it} describe el estado del ciclo de crédito para cada país i en el momento t. En concreto, se considera la existencia de tres estados en la evolución del crédito (alcista, intermedio y bajista), los cuales determinan la media de la serie $\mu(s_{it})$.

En el cuadro 1 se presentan los resultados de estimación del modelo. Las fases alcistas recogen episodios donde el crecimiento del crédito ha sido relativamente más elevado,

RESULTADOS DE ESTIMACIÓN

CUADRO 1

FASE	Media (a)	p_ii (a) (b)	Duración esperada (n.º trimestres) (c)	Probabilidad ergódica (d)
1 Alcista	0,808	0,923	13,0	0,371
	(0,055)	(0,013)		
2 Intermedia	-0,185	0,924	13,2	0,448
	(0,063)	(0,016)		
3 Bajista	-1,212	0,864	7,4	0,181
	(0,075)	(0,011)		

FUENTE: Anguren (2011).

a Los números entre paréntesis se refieren a la desviación estándar de los parámetros estimados.
b p_ii se refiere a la probabilidad de que la variable latente permaneza en el mismo estado (i = 1, 2, 3) en el período siguiente.
c La duración esperada de cada estado se obtiene del siguiente modo: 1 / (1 – p_ii).
d Probabilidad no condicionada de que el ciclo de crédito se encuentre en cada una de las fases.

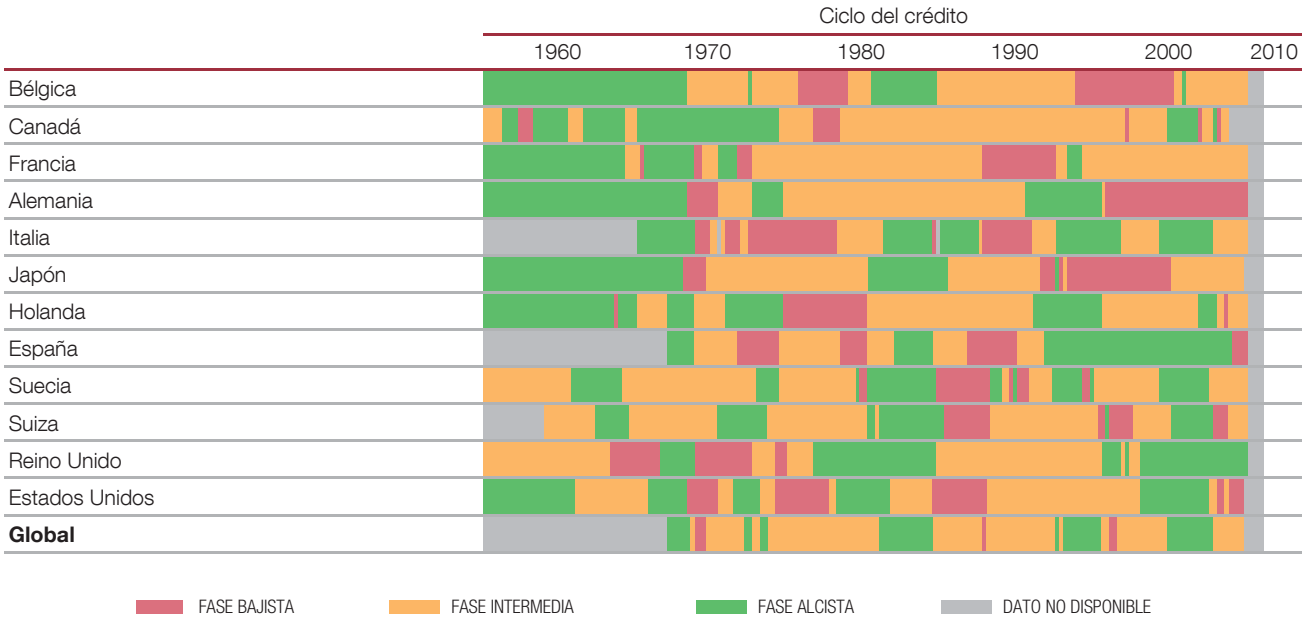
con un crecimiento medio del 0,808 (es importante notar que estos parámetros se obtienen de series estandarizadas, por lo que este valor representaría un 80,8 % de una desviación típica más la media no condicionada de la serie original[7]) y una duración esperada superior a tres años. Las fases bajistas presentan una duración menor de dos años y engloban períodos donde el crecimiento fue negativo; en concreto, –1,212. Por último, las fases en las que la evolución del crédito no ha sido extremo (–0,185), durante las fases intermedias, son las más usuales, con una duración esperada superior a tres años y una probabilidad no condicionada del 44,8 %.

El cuadro 2 muestra la evolución de los ciclos de crédito identificados por el modelo mediante un mapa térmico, donde se distinguen por colores las tres fases. Los períodos de transición entre las distintas fases muestran ciertas peculiaridades que cabe destacar. Por ejemplo, durante la década de los setenta, la mitad de los países considerados registró frenazos en el crecimiento del crédito bancario, entrando directamente en fases bajistas —en rojo— tras un período de expansión —en verde— (Alemania, Estados Unidos, Francia, Italia y Reino Unido). En segundo lugar, parece que este fenómeno ha ido desapareciendo en las siguientes décadas, durante las cuales la ralentización en el crecimiento del crédito pasó a ser más gradual, presentando episodios de crecimientos intermedios —en amarillo— entre fases alcistas y fases bajistas (Alemania en 2001, España en 1990, y Estados Unidos en 1987 y en 2007). En tercer lugar, se puede observar cómo, en la mayoría de los casos, las fases bajistas finalizaron con períodos de crecimiento intermedio, lo que indica que las recuperaciones rápidas no son frecuentes en el ciclo de crédito bancario. Por último, tras el inicio de la crisis financiera en 2007, seis países habrían entrado en algún momento en un episodio bajista o de ajuste (Alemania, Canadá, España, Estados Unidos, Holanda y Suiza), y el crédito continuaría en el último período disponible en la muestra en esa fase en tres de ellos (Alemania, España y Estados Unidos).

Es destacable que los episodios de fases bajistas detectados por el modelo coinciden en varios casos con crisis financieras o bancarias identificadas previamente en la literatura, lo que indica una notable correlación entre el análisis de eventos y este tipo de análisis.

7 La traducción de estos parámetros para cada una de las series originales debe llevarse a cabo deshaciendo la estandarización propuesta para la estimación. De este modo, las medias para cada uno de los estados difiere entre países, siendo más extremas en casos como Suecia o Reino Unido (donde los períodos expansivos coinciden con crecimientos medios cercanos al 3 % intertrimestral y los períodos bajistas con decrecimientos medios mayores del –1 % intertrimestral). Véase Anguren (2011).

MAPA TÉRMICO: EVOLUCIÓN DEL CICLO DEL CRÉDITO (a) CUADRO 2



FUENTE: Banco de España.

a La fecha de cierre es el I TR 2010, exceptuando Canadá (IV TR 2008), Japón (IV TR 2009) y Estados Unidos (IV TR 2009).

Por ejemplo, las fases de ajuste en España (1977), Japón (a mediados de los noventa) o Suecia (1991) forman parte de las que Reinhart y Rogoff (2008a) llaman las «cinco grandes crisis financieras». Asimismo, existen diversos episodios que concuerdan con crisis bancarias detalladas por Honohan y Laeven (2005) y Laeven y Valencia (2008), como Alemania en la primera mitad de los setenta, Italia a mediados de los noventa, Reino Unido a mediados de los setenta o la *savings and loans crisis* en Estados Unidos.

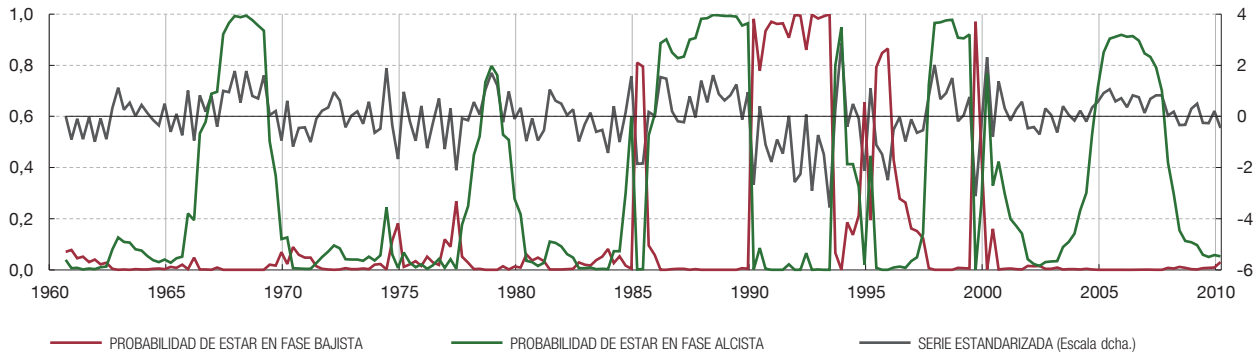
Respecto a la evolución individual de los ciclos de crédito, en el gráfico 2 se muestra la evolución de la probabilidad de estar en estadios alcistas o bajistas junto con las series utilizadas en la estimación para los casos de España, Japón y Suecia (países que han sufrido importantes crisis crediticias, como se comentaba en el párrafo anterior). En muchos de estos casos, la dinámica observada en la evolución del crédito refleja acontecimientos característicos de episodios de crisis financiera y/o bancaria. Por ejemplo, antes de la crisis de los países nórdicos de principios de los noventa, la actividad crediticia de las entidades bancarias en estos países creció fuertemente, resultando en un episodio de expansión. La evolución del ciclo en Suecia describe este desarrollo con un prolongado período de expansión desde 1985, previo a su entrada en una fase bajista iniciada en el primer trimestre de 1990.

Japón también muestra un comportamiento singular que refleja la importante crisis bancaria experimentada a principios de los años noventa y que marcó el inicio de la «década perdida». El sector bancario japonés experimentó un prolongado período de expansión de la financiación bancaria a finales de los ochenta, en paralelo con la burbuja en los precios de los activos que finalmente explotaría en el año 1991. El efecto del pinchazo de esta burbuja es capturado como un episodio de crecimiento intermedio, pues el ajuste del crédito bancario fue paulatino. No obstante, el fuerte incremento de las pérdidas experimentadas por el sector bancario (por el reconocimiento de préstamos incobrables y el fuerte incremento de las provisiones) dio lugar a una nueva oleada de quiebras bancarias

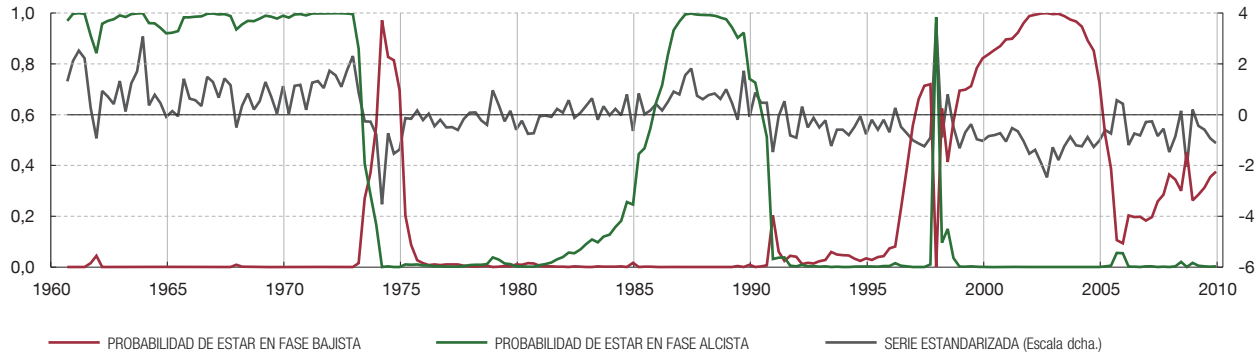
PROBABILIDADES DE ESTAR EN FASE BAJISTA Y ALCISTA

GRÁFICO 2

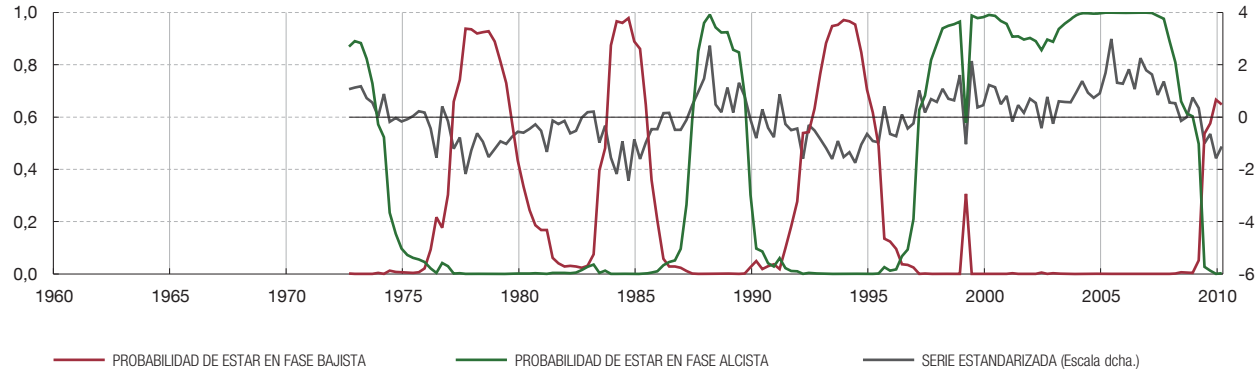
SUECIA



JAPÓN



ESPAÑA

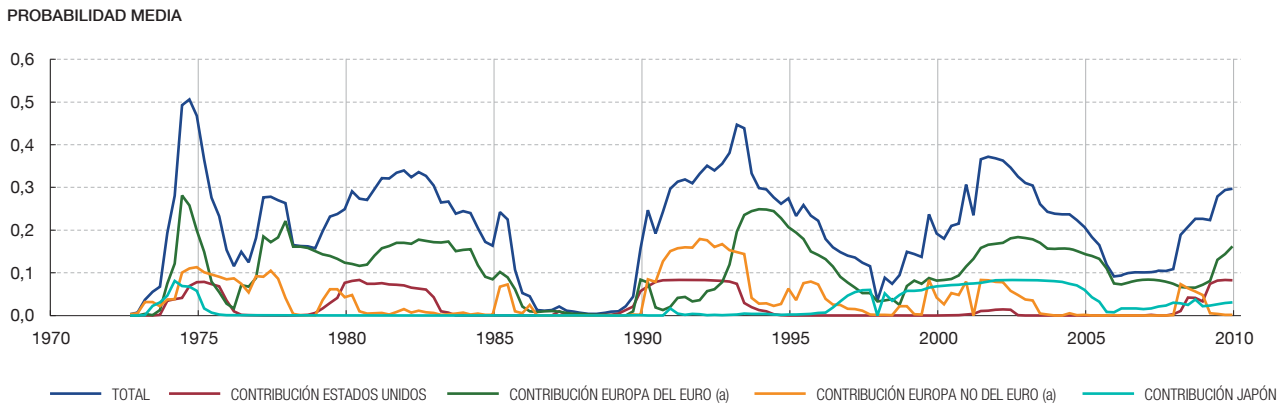


FUENTE: Banco de España.

que desembocaría en el año 1997 en una de las fases bajistas más prolongadas observadas en el conjunto de países incluidos en la muestra [véase Nakaso (2001)][8]. En definitiva, aunque en la crisis japonesa la expansión no fue seguida por una fase bajista inmediatamente, los efectos del ajuste se hicieron sentir en el medio plazo y han sido muy persistentes: casi veinte años después, el crédito no ha vuelto a situarse en una fase alcista (véase también el cuadro 1).

8 No se ha encontrado evidencia que respalde el repunte en la probabilidad de estar en una fase alcista en el cuarto trimestre 1997 para Japón, por lo que cabe pensar que puede tener su origen en un cambio de metodología en las series.

INDICADOR: PROBABILIDAD GLOBAL DE ESTAR EN FASE BAJISTA (a) GRÁFICO 3



FUENTE: Banco de España.

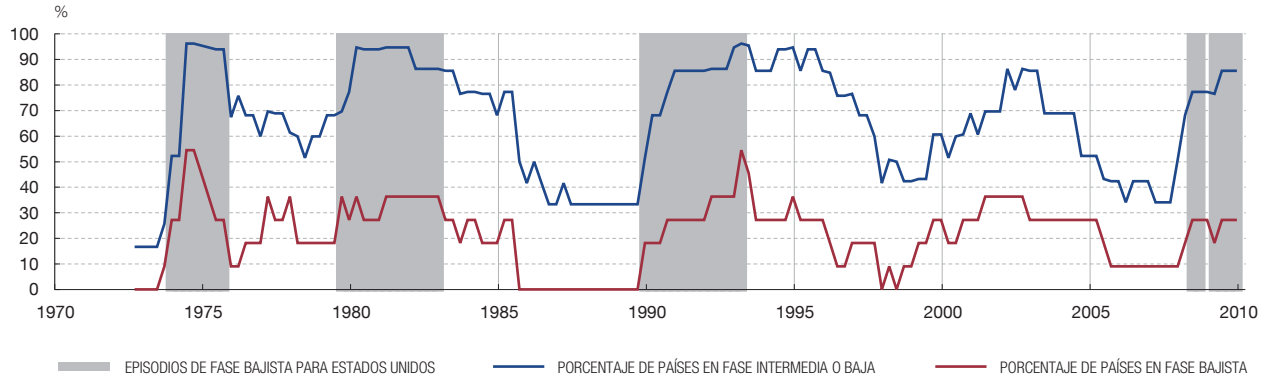
a Países: Japón, Europa del euro (Alemania, Bélgica, España, Francia, Holanda e Italia), Europa no del euro (Reino Unido, Suecia y Suiza) y Estados Unidos.

En el caso de España, cabe destacar que la fase bajista observada en el año 1977 coincide con la crisis bancaria que vino precedida por un período de fuerte expansión del crédito bancario. Asimismo, se puede observar que las transiciones experimentadas por el crecimiento del crédito en este caso y a principios de los noventa fueron graduales, entrando en un período de crecimiento intermedio previo a las fases bajistas. Sin embargo, el punto de giro observado en la última crisis fue más contundente. Durante los años previos a la crisis financiera iniciada en 2007, tuvo lugar uno de los episodios de expansión de crédito más amplios observados en el período considerado, que finalizó súbitamente en torno al segundo trimestre de 2009, cuando el crédito entra en una fase bajista.

Una de las ventajas de trabajar con una muestra amplia de países avanzados es que permite estudiar la evolución del ciclo de crédito desde una perspectiva global para las áreas desarrolladas y su grado de sincronización. En el gráfico 3 se muestra un indicador compuesto por la media simple de las probabilidades de estar en una fase bajista en cada uno de los países considerados, junto con las contribuciones de distintas áreas a la evolución del mismo (también en el mapa térmico representado en el cuadro 1 se ha incluido la secuencia de fases agregada). El indicador representado en el gráfico 3 aporta evidencia sobre la existencia de un patrón cíclico sistemático en el crecimiento del crédito en este grupo de países desarrollados durante los últimos cuarenta años. Así, se pueden identificar cinco episodios de fase bajista sincronizada en el crédito bancario: 1974-1975, 1980-1982, 1991-1993, 2001-2002 y desde 2008 hasta el final de la muestra. Sin embargo, solo en tres de esas ocasiones se observó un cambio de fase en el crédito bancario global (1974-1975, 1991-1993 y 2001-2002). Esta menor recurrencia viene inducida por el efecto agregación de las series en el indicador, que tiende a alisar la serie y a reducir las observaciones extremas. Por último, en el mapa térmico resulta especialmente llamativo el hecho que, tanto en el inicio la última crisis financiera como en el episodio de mediados de los años setenta, se observó un parón generalizado con cambios simultáneos desde fases alcistas a fases intermedias o bajistas en la mayor parte de estos países.

En el gráfico 4 se pueden observar una descripción alternativa de la sincronización del crédito global y su correlación con el de Estados Unidos. La línea roja muestra el porcentaje de países que se encontraban en una fase bajista, mientras que la línea azul refleja el porcentaje de países en una fase bajista o intermedia. Las áreas sombreadas corresponden

SINCRONIZACIÓN DEL CICLO DE CRÉDITO GRÁFICO 4



FUENTE: Banco de España.

a períodos en los cuales el ciclo crediticio en Estados Unidos se encontraba en un episodio contractivo. Esta comparativa visual permite observar que el ciclo estadounidense muestra una alta correlación con la evolución del crédito bancario en el ámbito internacional. Asimismo, se intuye una cierta anticipación del ciclo de Estados Unidos frente al global, entrando en episodios bajistas con anterioridad a otros países y recuperándose cuando buena parte de las economías analizadas acababa de entrar en un período de restricciones en el crecimiento del crédito.

5 Relación con el ciclo económico real y con las encuestas de opinión sobre préstamos bancarios

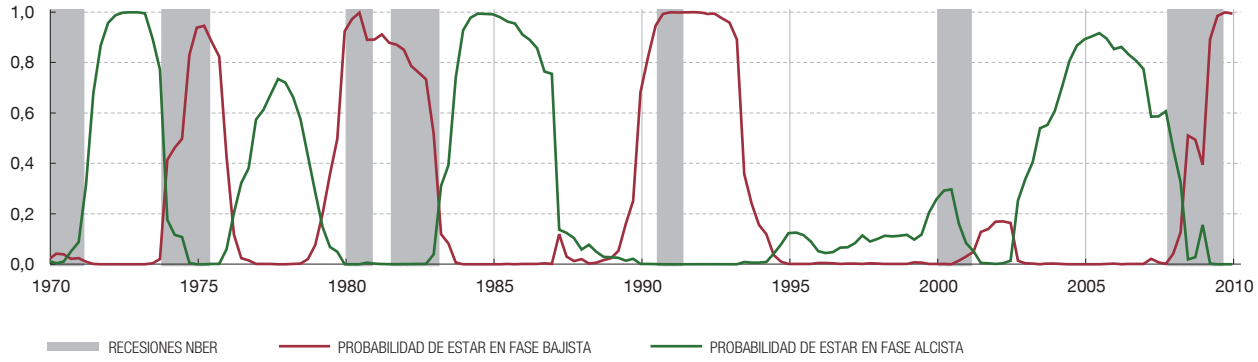
Como se ha expuesto anteriormente, en muchas ocasiones las fluctuaciones en el crecimiento del crédito están relacionadas con el estado del ciclo económico real. Se puede estudiar la relación entre ambos a través de una comparación de los episodios de crisis crediticia identificados por el modelo de Markov frente a las recesiones económicas que se han dado en un determinado país. A modo de ilustración, el gráfico 5 muestra, para el caso de Estados Unidos, la evolución de la probabilidad de estar en una fase bajista (en rojo) y alcista (en verde), junto con las recesiones identificadas por el NBER durante los últimos cincuenta años (área sombreada).

En el gráfico se puede observar que, para el caso de Estados Unidos, existe una relación estrecha entre la evolución de la economía real y el estado de la financiación bancaria. Cuatro de las recesiones experimentadas en el período considerado han estado acompañadas por fases bajistas en el ciclo de crédito: la primera crisis del petróleo (1973-1975), la segunda crisis del petróleo (1979-1982), la crisis de las *savings and loans* (1989-1993) y la crisis financiera iniciada en 2007. Respecto a las recesiones de inicio de los setenta y en 2001, se puede observar que, aunque el modelo no identifica una entrada en una fase bajista, la probabilidad de encontrarse en la misma aumenta. De hecho, durante estos períodos el ciclo de crédito se ralentizó de forma moderada, entrando en una fase intermedia (véase cuadro 2).

Como ya se ha expuesto en la sección 2, la causalidad entre ambos ciclos puede darse en los dos sentidos. Las recesiones de los años ochenta y noventa comenzaron con posterioridad al inicio de una fase bajista de crédito, de modo que la ralentización del crédito bancario habría incidido en la actividad económica a través del canal de crédito o *bank lending channel.* Por otra parte, se puede observar cómo, durante las recesiones de mediados de los setenta y la reciente crisis financiera, la evolución del crédito bancario ha presentado un comportamiento retardado frente al ciclo económico real. En el período actual, sin duda, la caída de la actividad ha desempeñado un papel importante

EVOLUCIÓN DEL CRÉDITO BANCARIO Y DE LAS RECESIONES NBER GRÁFICO 5

PROBABILIDADES DE ESTAR EN FASE BAJISTA Y ALCISTA, Y RECESIONES



FUENTE: Banco de España.

en la reducción de la demanda crédito, pero no se puede descartar que un comportamiento más cauto de los prestatarios —el canal de riesgo de crédito— también haya desempeñado un papel relevante. En todos los casos, no obstante, hay que tener en cuenta que el efecto del acelerador financiero tiende a generar espirales en el que el sentido de la causalidad actúa en ambas direcciones.

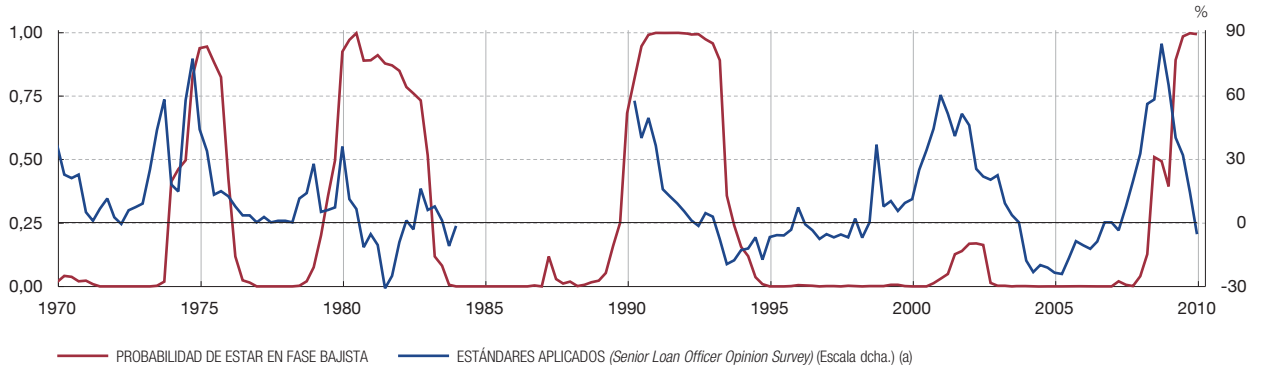
También se puede observar en el gráfico 5 cómo todos los episodios bajistas de crecimiento del crédito estuvieron precedidos por un período de expansión, si bien es llamativo el hecho de que no resulta sencillo establecer una relación clara entre la duración de las fases de auge del crédito y los subsecuentes períodos bajistas. Algunos autores han señalado la relación entre un crecimiento rápido del crédito y un aumento de la fragilidad del sistema bancario, apuntando a su capacidad como indicador adelantado de futuras crisis bancarias o financieras [Kaminsky y Reinhart (1999)]. En todo caso, cabe destacar el hecho de que el crecimiento acelerado del crédito bancario puede venir dado por un proceso de desarrollo financiero que sirva de base para un mayor crecimiento económico. Por ejemplo, según Alberola y Berganza (2007) el avance del crédito bancario previo a la crisis financiera observado en los países de América Latina desde comienzos de 2004 hasta el inicio de la crisis financiera parece haber estado determinado, fundamentalmente, por un proceso de profundización bancaria.

Como se explica en la sección 2, la evolución del ciclo de crédito está relacionada con los cambios en la valoración del riesgo de las entidades y con sus criterios para la concesión de préstamos. De acuerdo con ello, cabría esperar que los ciclos muestren un comportamiento similar al de variables que reflejen los cambios en sus políticas de concesión, como, por ejemplo, las encuestas sobre préstamos bancarios. Estas encuestas ofrecen información cualitativa sobre las condiciones de la oferta de crédito bancario[9]. En el gráfico 6 se muestra una comparación entre el ciclo de crédito y los estándares aplicados por las entidades bancarias en la concesión de préstamos para los casos de Estados Unidos (panel superior) y la zona del euro (panel inferior). La variable referida a los estándares aplicados señala el porcentaje de encuestados que afirmaron haber endurecido los estándares a la concesión de préstamos durante el trimestre (un signo positivo refleja un endurecimiento neto y un signo negativo señala una relajación neta). En el caso de Estados Unidos, se observa una relación estrecha entre ambas variables, especialmente desde los años

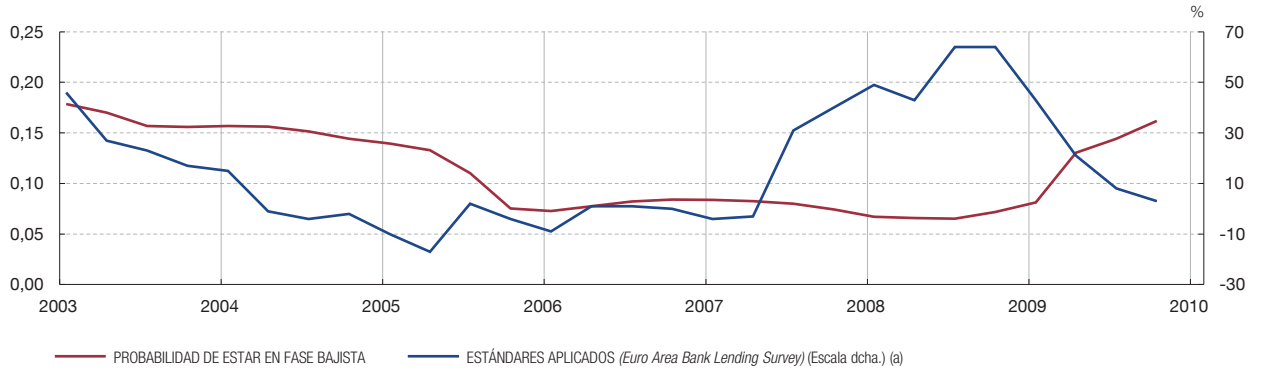
9 Lown y Morgan (2006) sugieren que la evolución de los estándares aplicados por las entidades dominan a los tipos de interés de los préstamos como variable explicativa de la variación del crédito bancario.

PROBABILIDAD DE ESTAR EN FASE BAJISTA Y ESTÁNDARES DE CONCESIÓN GRÁFICO 6

ESTADOS UNIDOS



ZONA DEL EURO (b)



FUENTE: Banco de España.

a Porcentaje neto de entidades que afirman haber endurecido las condiciones de concesión de nuevos préstamos. Un signo positivo/negativo muestra un endurecimiento/relajación durante el trimestre correspondiente. Durante el período 1984-1989 no existen datos, ya que la Reserva Federal optó por no realizarla.
b Países de la zona del euro de la muestra: Alemania, Bélgica, España, Francia, Holanda e Italia.

noventa. Además, resulta llamativo el hecho de que la evolución de los estándares reaccionó con anterioridad al crédito bancario durante la mayor parte del período (por ejemplo, previamente a la última crisis financiera, las entidades comenzaron a endurecer las condiciones en el primer trimestre de 2007, mientras que el crecimiento del crédito entró en fase bajista en el segundo trimestre de 2008). El gráfico correspondiente a la zona del euro comprende un período más reducido, dada la disponibilidad de la encuesta elaborada por el Banco Central Europeo. El patrón observado tiene cierta similitud al de Estados Unidos, ya que los datos indican que las entidades bancarias comenzaron a endurecer los estándares aplicados en el segundo trimestre de 2007, mientras que el crecimiento del crédito no comenzó a ralentizarse hasta el primer trimestre de 2008. A partir de ese momento, el indicador para la zona del euro refleja un aumento de la probabilidad de estar en una fase bajista de crédito, si bien seguía sin ser la fase dominante al final de la muestra.

6 Conclusiones

El presente artículo se centra en uno de los campos de estudio que han adquirido especial relevancia tras la última crisis financiera: el ciclo de crédito. Esta rama de investigación resulta de interés, dada su relación con la evolución de la actividad económica, así como para comprender las dinámicas que afectan al estado de los sistemas financiero y bancario. En particular, se propone el análisis del ciclo de crédito haciendo uso de un modelo de Markov con regímenes cambiantes, propuesto originalmente por Hamilton (1989) para el PNB de Estados Unidos. Este enfoque ha demostrado poseer ciertas ventajas

en el análisis de ciclos: en particular, la minimización del grado de arbitrariedad en el análisis de las series.

Los resultados muestran cómo las economías desarrolladas consideradas (G 10 más España) han experimentado fases alcistas y bajistas de modo recurrente durante los últimos cincuenta años. Asimismo, se observa una cierta sincronía en sus ciclos, destacando el papel de Estados Unidos en este contexto. Por otra parte, es llamativo el cambio en el comportamiento de los ciclos observados en cuanto a sus cambios de fase o puntos de giro. Mientras que en los años setenta eran más usuales los parones bruscos en el crecimiento del crédito —es decir, el paso de fases alcistas a bajistas sin pasar por el estadio intermedio—, desde finales de los ochenta se observan cambios más graduales. También es destacable el hecho de que muchos de los episodios de crisis crediticias identificados en este trabajo están estrechamente relacionados con la situación del sistema financiero, coincidiendo en muchos casos con crisis bancarias o financieras señaladas en la literatura.

Asimismo, también se observa, tomando el ejemplo de Estados Unidos, que la relación entre el ciclo del crédito y el de la actividad opera en ambas direcciones, observándose casos en los que la fase bajista del ciclo de crédito se anticipó a episodios de recesión, y viceversa. Por último, la evolución del ciclo de crédito presenta un comportamiento similar, aunque en su mayor parte retardado, al de los estándares aplicados por las entidades en la concesión de préstamos, los cuales representan una medida cualitativa de la oferta de crédito bancario.

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