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## Results of the comprehensive quantitative impact study

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# Results of the comprehensive quantitative impact study

## Executive Summary

The Committee of European Banking Supervisors (CEBS) has conducted a comprehensive European quantitative impact study (EU-QIS) to assess the impact of the new requirements to raise the quality and level of the capital base, to enhance risk capture, to contain excessive leverage and to introduce new liquidity standards for the global banking system, collectively referred to as “Basel III”. The Group of Governors and Heads of Supervision (GHOS), the oversight body of the Basel Committee on Banking Supervision (BCBS)<sup>1</sup>, confirmed the design and calibration of these reforms at its July and September 2010 meetings. The revised rules were finally endorsed by the G20 Leaders at their November Seoul Summit. This report summarizes the results of the comprehensive EU-QIS by providing aggregated analyses of bank data collected by national supervisors. The results of this study will be used as a key input by the European Commission in preparing the impact assessment that will accompany the CRD IV legislative proposals.

Comprehensive QIS information was submitted by individual banks to their national supervisors on a voluntary and confidential basis. A total of 246 banks from 21 CEBS member jurisdictions participated in the study, including 50 Group 1 banks and 196 Group 2 banks.<sup>2</sup> Member jurisdictions’ coverage of their banking sectors was very high for Group 1 banks, reaching nearly 100% for some jurisdictions, while coverage for Group 2 banks was comparatively lower and varied across jurisdictions. Banks participating in the study were requested to submit consolidated data as of 31 December 2009. Some follow-up requests were undertaken in order to refine and enhance original submissions. CEBS appreciates the significant efforts banks and national supervisors contributed to this data collection exercise.

The comprehensive EU-QIS focuses on a number of specific items:

- Changes to the definition of capital that result in a new capital standard, referred to as common equity Tier 1 (CET1), a reallocation of deductions to CET1 and changes to the eligibility criteria for Tier 1 and total capital;
- Increases in risk-weighted assets resulting from changes to the definition of capital, securitisation, trading book and counterparty credit risk requirements;
- The new international leverage ratio; and

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<sup>1</sup> The Basel Committee on Banking Supervision is a committee of banking supervisory authorities which was established by the central bank Governors of the Group of Ten countries in 1975. It consists of senior representatives of bank supervisory authorities and central banks from Argentina, Australia, Belgium, Brazil, Canada, China, France, Germany, Hong Kong SAR, India, Indonesia, Italy, Japan, Korea, Luxembourg, Mexico, the Netherlands, Russia, Saudi Arabia, Singapore, South Africa, Spain, Sweden, Switzerland, Turkey, the United Kingdom and the United States. It usually meets at the Bank for International Settlements (BIS) in Basel, Switzerland, where its permanent Secretariat is located.

<sup>2</sup> Group 1 banks are those that have Tier 1 capital in excess of €3 billion EUR, are well diversified, and are internationally active. All other banks are considered to be Group 2 banks.

- Two new international liquidity standards – the liquidity coverage ratio and the net stable funding ratio.

With the exception of the transitional arrangements for non-correlation trading securitisation positions in the trading book, this report does not take into account any transitional arrangements such as the phase-in of deductions and grandfathering arrangements, unless otherwise noted. Rather, the estimates presented assume **full implementation** of the final Basel III package, based on data as of 31 December 2009. No assumptions have been made about banks' future profitability or behavioural responses. For this reason the QIS results are not comparable to industry estimates, which tend to be based on forecasts and consider management actions to mitigate the impact, as well as incorporating estimates where information is not publicly available.

## Key results<sup>3</sup>

### Overall impact on risk-based capital requirements

Assuming full and immediate implementation of the new standards as given by the GHOS agreement, the Group 1 banks would have an average net CET1 ratio of 4.9%. Comparing this figure with the 10.7% average ratio of CET1 capital gross of deductions to the current risk weighted assets indicates that the proposed deductions and the changes to the capital requirement would reduce the CET1 ratio by 5.8 percentage points. The corresponding average CET1 ratios for Group 2 banks would be 7.1% and 11.1%, which indicates a considerably smaller effect.

Calculated on the same basis, the capital shortfall for Group 1 banks in the QIS sample would be between €53 billion for the CET1 minimum requirement of 4.5% and €263 billion for a CET1 target level of 7.0% (including the capital conservation buffer) had the Basel III requirements been in place at the end of 2009.<sup>4</sup> As a point of reference, the sum of profits after tax and prior to distributions across the Group 1 banks in the same sample in 2009 was €84 billion. The amount of additional CET1 capital required for Group 2 banks in the QIS sample would be estimated at €9 billion in order to reach the CET1 minimum of 4.5%. For a CET1 target level of 7%, Group 2 banks would need €28 billion.<sup>5</sup> The sum of their profits after tax and prior to distributions in 2009 was €12 billion.

The Tier 1 capital ratios of Group 1 banks would on average decline from 10.3% to 5.6%, while total capital ratios would decrease from 14.0% to 8.1%. The reduction in other capital ratios is also less pronounced for Group 2 banks. Tier 1 capital ratios would decrease from 10.3% to 7.6% and total capital ratios would decline from 13.1% to 10.3%.

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<sup>3</sup> Unless noted otherwise, the analysis of overall changes in risk-weighted assets and capital ratios only features banks that were able to provide quality data on **all** relevant aspects of the Basel III framework.

<sup>4</sup> 45 Group 1 banks and 163 Group 2 banks were considered in the capital shortfall calculation. Not all of these banks provided data on all relevant categories of risk-weighted assets. It was assumed that those items for which no information on the change in risk-weighted assets was available would remain constant for a particular bank.

<sup>5</sup> For both samples, the estimated shortfall may be understated as some institutions, which are likely to have a shortfall, were excluded from the analysis due to data issues.

**Definition of capital**

The deductions would on average reduce the CET1 capital of Group 1 and Group 2 banks by 42.1% and 33.4%, respectively.

**Changes in risk-weighted assets**

Overall risk-weighted assets would increase by 24.5% for Group 1 banks. The main drivers of this increase are charges against counterparty credit risk, securitisations and those coming from the new definition of capital. Accordingly, banks that have significant exposures in these areas heavily influence the average increase in risk-weighted assets. Since Group 2 banks are in general less affected by the revised counterparty credit risk and trading book rules, their risk-weighted assets would increase by an average of just 4.1%. The changes in risk-weighted assets have less impact on banks' capital positions than changes to the definition of capital.

**Leverage ratio**

The weighted average leverage ratio using the new definition of Tier 1 capital and the measure of exposure agreed by the GHOS would be 2.5% for Group 1 banks and 3.5% for Group 2 banks.

**Liquidity standards**

The new liquidity standards would result in an average liquidity coverage ratio of 67% and 87% for Group 1 and Group 2 banks, respectively. The average net stable funding ratio would be 91% and 94%, respectively.

## 1 General remarks

At its 12 September 2010 meeting, the Group of Governors and Heads of Supervision (GHOS), the BCBS's oversight body, announced a substantial strengthening of existing capital requirements and fully endorsed the agreements it reached on 26 July 2010.<sup>6</sup> These capital reforms, set out in the document *Basel III: A global regulatory framework for more resilient banks and banking systems*,<sup>7</sup> together with the introduction of two international liquidity standards as outlined in the *International framework for liquidity risk measurement, standards and monitoring*,<sup>8</sup> deliver on the core of the global financial reform agenda presented to the Seoul G20 Leaders summit in November 2010. The comprehensive quantitative impact study seeks to measure the impact of these capital and liquidity requirements, collectively referred to as "Basel III". From a European perspective these reforms will be included by the European Commission in its CRD IV legislative proposals which are expected before summer 2011. Thus, results from the EU-QIS will be used as a key input in preparing the impact assessment that will accompany the CRD IV legislative proposals.

The remainder of this note is structured as follows:

- Section 1 provides an overview of the sample and data quality issues;
- Section 2 shows the total impact of the Basel III proposals on the risk-based capital ratios;
- Section 3 evaluates the impact of changes to the definition of capital;
- Section 4 discusses the changes in risk-weighted assets;
- Section 5 presents the leverage ratio findings; and
- Section 6 presents an analysis of the impact of the liquidity standards.

### 1.1 Scope of the impact study

Twenty-one members of CEBS participated in the European quantitative impact study (EU-QIS). The estimates presented are based on data submitted by the participating banks to national supervisors in the QIS workbooks and in accordance with the instructions prepared by CEBS in cooperation with the BCBS in February 2010.<sup>9</sup> The results were initially submitted to CEBS in May 2010.

The purpose of the study was for CEBS to assess the impact on participating banks of the capital and liquidity proposals set out in the following documents:

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<sup>6</sup> See the 26 July 2010 press release "The Group of Governors and Heads of Supervision reach broad agreement on Basel Committee capital and liquidity reform package" ([www.bis.org/press/p100726.htm](http://www.bis.org/press/p100726.htm)) and the 12 September 2010 press release "Group of Governors and Heads of Supervision announces higher global minimum capital standards" ([www.bis.org/press/p100912.htm](http://www.bis.org/press/p100912.htm)).

<sup>7</sup> Basel Committee on Banking Supervision, *Basel III: A global regulatory framework for more resilient banks and banking systems*, December 2010.

<sup>8</sup> Basel Committee on Banking Supervision, *International framework for liquidity risk measurement, standards and monitoring*, December 2010.

<sup>9</sup> Basel Committee on Banking Supervision, *Instructions for the comprehensive quantitative impact study*, February 2010.

- *Revisions to the Basel II market risk framework* (“the Revisions”)<sup>10</sup> and *Guidelines for computing capital for incremental risk in the trading book* (“the Guidelines”);<sup>11</sup>
- *Enhancements to the Basel II framework* (“the Enhancements”)<sup>12</sup> which include the revised risk weights for re-securitisations held in the banking book;
- *Strengthening the resilience of the banking sector* (“the Resilience document”)<sup>13</sup>, including
  - the changes to the definition of capital;
  - the introduction of a leverage ratio; and
  - the changes to the treatment of counterparty credit risk; and
- *International framework for liquidity risk measurement, standards and monitoring* (“the Liquidity document”).<sup>14</sup>

Based on the agreements announced on 26 July 2010,<sup>15</sup> CEBS conducted a follow-up data collection exercise in September 2010 to collect a limited amount of data from the participating banks, allowing CEBS to present the impact of changes to capital and liquidity standards more precisely in this report.<sup>16</sup>

## 1.2 Sample of participating banks

A total of 246 banks from 21 CEBS member jurisdictions participated in the EU-QIS, including 50 Group 1 banks and 196 Group 2 banks. Of these banks, 48 Group 1 banks and 182 Group 2 banks participated in the follow-up data collection exercise.<sup>17</sup> Banks were asked to provide data as of 31 December 2009 at the consolidated level. As in previous impact studies by CEBS, Group 1 banks are those that have Tier 1 capital in excess of €3 billion, are well diversified and are internationally active. All other banks are considered to be Group 2 banks. Subsidiaries of these banks were excluded from the analyses to avoid double counting.

As shown in Table 1, 21 member jurisdictions provided data. Member jurisdictions’ coverage of their banking sectors was very high for Group 1 banks, reaching 100% coverage for most jurisdictions, and lower but still good for Group 2 banks.

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<sup>10</sup> Basel Committee on Banking Supervision, *Revisions to the Basel II market risk framework*, July 2009.

<sup>11</sup> Basel Committee on Banking Supervision, *Guidelines for computing capital for incremental risk in the trading book*, July 2009.

<sup>12</sup> Basel Committee on Banking Supervision, *Enhancements to the Basel II framework*, July 2009.

<sup>13</sup> Basel Committee on Banking Supervision, *Strengthening the resilience of the banking sector*, consultative document, December 2009.

<sup>14</sup> Basel Committee on Banking Supervision, *International framework for liquidity risk measurement, standards and monitoring*, consultative document, December 2009.

<sup>15</sup> See the 26 July 2010 press release “The Group of Governors and Heads of Supervision reach broad agreement on Basel Committee capital and liquidity reform package” (<http://www.bis.org/press/p100726.htm>) and the related annex.

<sup>16</sup> Basel Committee on Banking Supervision, *Instructions for the follow-up data collection for the comprehensive quantitative impact study*, September 2010.

<sup>17</sup> Not all banks provided data on all parts of the Basel III framework in the comprehensive QIS.

Table 1  
**Number of banks submitting data for the comprehensive QIS and the follow-up data collection exercise**

| Jurisdiction   | Sum of Group 1 and Group 2 banks |
|----------------|----------------------------------|
| Austria        | 18                               |
| Belgium        | 4                                |
| Denmark        | 4                                |
| Finland        | 14                               |
| France         | 11                               |
| Germany        | 68                               |
| Greece         | 4                                |
| Hungary        | 3                                |
| Ireland        | 9                                |
| Italy          | 22                               |
| Luxembourg     | 1                                |
| Netherlands    | 18                               |
| Norway         | 8                                |
| Poland         | 5                                |
| Portugal       | 7                                |
| Slovenia       | 2                                |
| Spain          | 7                                |
| Sweden         | 6                                |
| United Kingdom | 12                               |
| <b>Total*</b>  | <b>230</b>                       |

\* Due to confidentiality constraints data has been omitted for Cyprus and the Czech Republic while the number of their banks is still included in the total.

This report presents aggregated results of the comprehensive QIS based on the data available to CEBS on 26 July 2010 as well as some additional data on the definitions of capital, liquidity and counterparty credit risk collected between July and October. Despite the efforts by national supervisors and banks, there still remain a limited set of banks that are excluded from the overall exercise or for individual sections of the QIS due to incomplete data.

### **1.3 Methodology**

The impact assessment was carried out by comparing banks' capital positions under Basel III to the current regulatory framework implemented by the national supervisor. To maintain the confidentiality of the results, most charts show box plots separately for Group 1 and Group 2 banks including the mean (depicted as an "x"), median (red line), upper and lower quartiles and 10<sup>th</sup> and 90<sup>th</sup> percentiles of the relevant distributions.

Unless otherwise noted, the reported average amounts in this document have been calculated by creating a composite bank at a total sample level, which means that total sample averages are weighted. For example, the average common equity Tier 1 capital ratio is the sum of all banks' common equity Tier 1 capital within a bank group or total sample divided by the sum of all banks' risk-weighted assets for that bank group or for the total sample.

With the exception of the transitional arrangements for non-correlation trading securitisation positions in the trading book, this report does not take into account any transitional arrangements, such as the phase-in of deductions and grandfathering arrangements, unless otherwise noted.

### **1.4 Data quality**

Banks submitted very comprehensive and detailed non-public data on a voluntary and best-efforts basis. National supervisors and their QIS teams worked extensively with the banks to ensure data quality, completeness and consistency with the published QIS instructions. Unless otherwise noted, the analysis of overall changes in risk-weighted assets and capital ratios only features banks that were able to provide quality data on **all** relevant aspects of the Basel III framework.

In looking at the liquidity-related data provided by many banks, CEBS identified some areas where there were differences between jurisdictions in interpreting the instructions and additional guidance published. While these differences in interpretation led to work on clarifications of definitions and reporting instructions, some differences remain. As a result, not all elements of the data are comparable across banks.

### **1.5 Interpretation of results**

It should be noted that the actual impact of the new requirements by the time they are implemented will likely be lower as the banking sector adjusts to a changing economic and regulatory environment. Indeed, the QIS results do not consider banks' future profitability or make any assumptions about banks' behavioural responses (e.g. changes to portfolio composition and strategy as well as other management actions) to the policy changes. For this reason, the QIS results are not comparable to industry estimates, which tend to be based on forecasts and consider management actions to mitigate the impact, as well as incorporating estimates where information is not publicly available.



## 2 Overall changes in regulatory capital ratios

Table 2 shows the common equity Tier 1 (CET1) capital ratios if all final rules, both for the definition of capital and for the calculation of risk-weighted assets, were fully implemented as of 31 December 2009. Group 1 banks' average CET1 capital ratios would be reduced more than half from an average gross CET1 capital ratio of 10.7% to 4.9% when deductions and changes in risk-weighted assets (RWA) are taken into account (a decline of 5.8 percentage points). For Group 2 banks, the CET1 capital ratios would be reduced by deductions and changes in RWA from 11.1% to 7.1%, indicating that the measures have a greater impact on the larger banks.

These declines are mainly attributable to the new definition of capital deductions and filters not previously applied at the predominant level of Tier 1 capital in most jurisdictions (numerator) and to a lesser but still significant extent to increases in risk-weighted assets (denominator). The effect of these changes as presented in Table 2 is measured by gross<sup>18</sup> CET1 amounts in relation to banks' current risk-weighted assets (column "Gross") and by net amounts in relation to new risk-weighted assets (column "Net"). The results show significant variation within and between member jurisdictions (Chart 1).

Tier 1 capital ratios of Group 1 banks would on average decline from 10.3% to 5.6%, while total capital ratios would drop from 14.0% to 8.1%. As with CET1, Group 2 banks would experience a lower decrease in Tier 1 capital from 10.3% to 7.6% and a decline in total capital ratios from 13.1% to 10.3%.

It is important to keep in mind that the analysis of overall changes in capital ratios features 33 Group 1 and 157 Group 2 banks that were able to provide quality data on all relevant aspects of the Basel III framework. The exclusion of some banks, which were not able to provide all the data, is presumed to lead to an upward bias in the average capital ratios presented in Table 2.

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<sup>18</sup> Gross (net) CET1 refers to CET1 excluding (including) deductions.

Table 2

**Average capital ratios by banking group, in percent**

|         | Number of banks | CET1  |     | Tier 1  |     | Total   |      |
|---------|-----------------|-------|-----|---------|-----|---------|------|
|         |                 | Gross | Net | Current | New | Current | New  |
| Group 1 | 33              | 10.7  | 4.9 | 10.3    | 5.6 | 14.0    | 8.1  |
| Group 2 | 157             | 11.1  | 7.1 | 10.3    | 7.6 | 13.1    | 10.3 |

\* "Gross" is the ratio of gross CET1 (without deductions) relative to current risk-weighted assets. The "Net" column shows net CET1 (with deductions) relative to new risk-weighted assets.

Chart 1

**New net CET1 capital ratios**

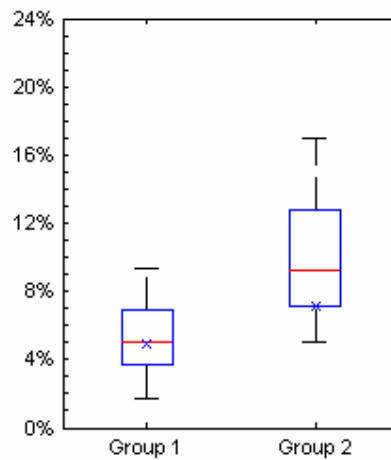
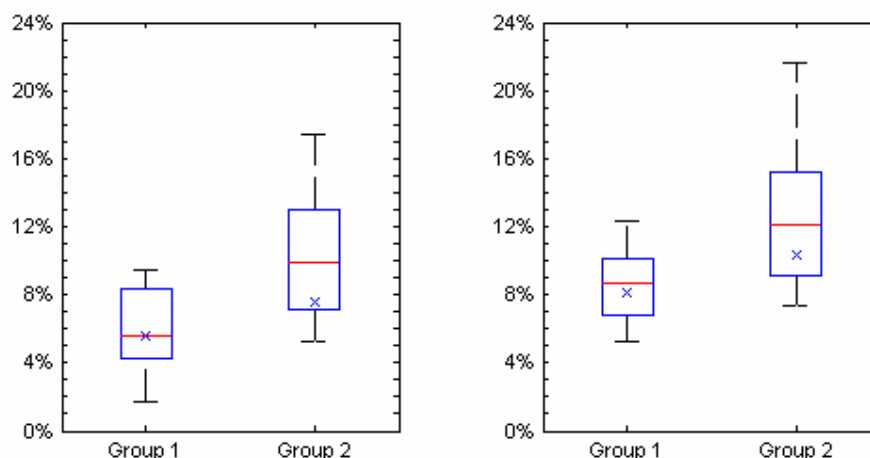


Chart 2

**New Tier 1 (left) and total (right) capital ratios**



Under the Basel III framework, the minimum requirement for CET1, the highest form of loss absorbing capital, will be set at 4.5% after the application of stricter adjustments. This will be phased in by 1 January 2015. Further, a capital conservation buffer above the regulatory minimum requirement will be set at 2.5% and will have to be met with common equity, after the application of deductions, by 1 January 2019. The purpose of the conservation buffer is to ensure that banks maintain a buffer of capital that can be used to absorb losses during periods of financial and economic stress. While banks are allowed to draw on the buffer during such periods of stress, the closer their regulatory capital ratios approach the minimum requirement, the greater the constraints on earnings distributions.

Table 3 provides information on the additional amount of capital that Group 1 and Group 2 banks would need between 31 December 2009 and 2019 to meet the target CET1 capital under Basel III, assuming a fully phased-in target CET1 requirement as at the end of 2009. Complete data on the total changes in capital and risk-weighted assets were available for 33 Group 1 banks and 157 Group 2 banks. It was assumed for the remaining banks that those items for which no information on the change in risk-weighted assets was available would remain constant for the particular bank.

Assuming a fully phased-in risk-based capital requirement, the amount of additional CET1 capital required for Group 1 banks in the QIS sample to meet the 4.5% common equity requirement would be €53 billion. For Group 2 banks, for which the data coverage is considerably smaller, the shortfall is estimated at €9 billion.<sup>19</sup> For a CET1 target of 7%, Group 1 banks would need €263 billion and the Group 2 banks in the QIS sample would need €28 billion. As a point of reference, the sum of profits after tax and prior to distributions for Group 1 and Group 2 banks in the same sample in 2009 was €84 billion and €12 billion, respectively.

No assumptions have been made about banks' future profitability or behavioural responses. For this reason the QIS results are not comparable to industry estimates, which tend to be

<sup>19</sup> For both samples, it is recognised that this estimated shortfall is understated and incomplete to the extent institutions with shortfalls have been excluded from the analysis.

based on forecasts and consider management actions to mitigate the impact, as well as incorporating estimates where information is not publicly available.

Table 3  
**Estimated overall CET1 shortfall, Group 1 and Group 2 banks,  
in € billions**

|                       | Group 1 banks<br>[45] | Group 2 banks<br>[163] |
|-----------------------|-----------------------|------------------------|
| CET1 shortfall – 4.5% | 53                    | 9                      |
| CET1 shortfall – 7.0% | 263                   | 28                     |

The shortfall is the sum of the shortfalls across individual banks where a shortfall is observed. The calculation includes all changes to RWA (eg, definition of capital, CCR, trading book and securitisation in the banking book). For banks where complete data on the total change in RWA were not available, it was assumed that RWA for missing items would remain constant.

### 3 Definition of capital

#### 3.1 Change in eligible capital

For Group 1 banks, the change in CET1 capital compared to the gross CET1 capital (without deductions) would amount to -42.1%. With an average change of -33.4%, the new rules would have less impact on Group 2 banks as compared to their Group 1 counterparts. The decline in both groups' Tier 1 and total capital would be more modest and largely due to changes in capital instruments' eligibility.

Table 4  
**Capital impact of new definition of capital, in percent**

|         | Number of<br>banks | Change in<br>RWA* | Change in<br>CET1 capital** | Change in<br>Tier 1 capital | Change in<br>total capital |
|---------|--------------------|-------------------|-----------------------------|-----------------------------|----------------------------|
| Group 1 | 45                 | 6.1               | -42.1                       | -33.3                       | -29.6                      |
| Group 2 | 163                | 3.1               | -33.4                       | -23.3                       | -18.5                      |

\* Change in current overall risk-weighted assets as a result of proposed changes to the definition of capital, ie from applying a risk-weighting treatment to exposures currently being deducted from capital or vice versa. RWA changes unrelated to the definition of capital are not considered here. \*\* The column "Change in CET1 capital" compares gross CET1 capital (without deductions) with net CET1 capital.

Chart 3

**Change in CET1 capital (left) and Tier 1 capital (right)**

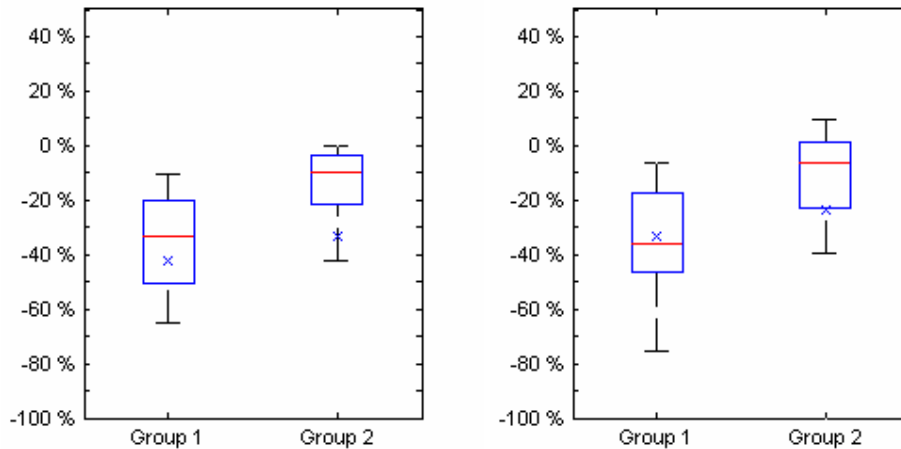
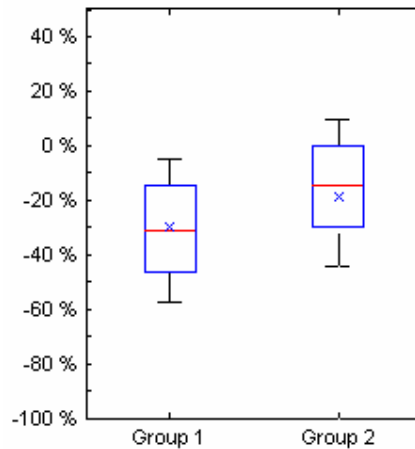


Chart 4

**Change in total capital**



**3.2 Impact of deductions on common equity Tier 1 capital**

Table 5 provides additional analyses of the difference between gross and net CET1 capital for Group 1 and Group 2 banks, separating the impact of the various deductions applied to gross CET1.

For the Group 1 banks, the reduction in CET1 capital would be driven primarily by deductions of goodwill (-19.8%), holdings in other financial institutions (-5.0%) and deferred tax assets

(-6.3%).<sup>20</sup> Minority interests (-3.7%) would have a large impact in jurisdictions where these interests are included in the current predominant form of Tier 1 capital. That said, the contribution of individual deductions to the overall change in CET1 would vary widely between jurisdictions. Generally, other deductions, for example those related to own shares, pension fund assets and securitisation gains on sale, would be less significant. The category “Excess above 15%” refers to the deduction of the amount by which the aggregate of the three items subject to the 10% limit for inclusion in CET1 capital would exceed 15% of a bank’s common equity component of Tier 1, calculated after all deductions from CET1.

Similarly to the Group 1 banks, the primary drivers of the overall Group 2 banks’ change in CET1 capital would relate to deductions for goodwill (-12.4%), holdings of other financial institutions (-8.9%), deferred tax assets (-2.9%) and intangibles (-3.1%). Again, the contribution of individual deductions to the overall change would vary across jurisdictions.

Table 5

**CET1 deductions and minority interest as a percentage of new CET1 capital gross of deductions**

|         | Number of banks | Goodwill | Intangibles | Financials | DTA  | MSRs | Excess above 15% | Other* | Total | Minority interest** |
|---------|-----------------|----------|-------------|------------|------|------|------------------|--------|-------|---------------------|
| Group 1 | 45              | -19.8    | -4.4        | -5.0       | -6.3 | 0.0  | -1.8             | -4.8   | -42.1 | -3.7                |
| Group 2 | 163             | -12.4    | -3.1        | -8.9       | -2.9 | 0.0  | -1.4             | -4.7   | -33.4 | -3.0                |

\* Other includes deductions related to investments in own shares, shortfall of provision to expected losses, cash flow hedge reserve, cumulative changes in own credit risk, pension fund assets, securitisation gains on sale and deductions from additional Tier 1 capital to the extent they exceed a bank’s additional Tier 1 capital. \*\* Minority interest is not included in the total deductions.

## 4 Changes in risk-weighted assets

### 4.1 Overall results

Table 6 presents the change in risk-weighted assets attributable to the introduction of Basel III and separated into the following items:

- **Definition of capital:** This column measures the change in risk-weighted assets as a result of proposed changes to the definition of capital, i.e. from applying a risk-weighting

<sup>20</sup> For deferred tax assets, the impacts presented in Table 5 include the impact of items fully deducted from CET1 (e.g. loss carry forwards) as well as those in excess of the 10% individual threshold under the basket (e.g. temporary differences). For holdings in other financial institutions, impacts include reciprocal cross-holdings in common equity as well as small investments and significant investments in the common equity of other financial institutions where these investments exceed the 10% individual threshold.

treatment to exposures currently being deducted from capital or vice versa.

- **Counterparty credit risk (CCR):** This column measures the increased capital charge for counterparty credit risk and the higher capital charge that results from applying a higher asset value correlation parameter against exposures to financial institutions under the IRB approaches to credit risk. The calculation uses a modified version of the December 2009 proposed bond equivalent capital charge for mark-to-market losses associated with a deterioration in the credit worthiness of a counterparty (ie credit valuation adjustment – CVA – risk) and a threshold of US\$100 billion for applying the increased asset value correlation to regulated financial institution exposures. As this does not reflect all refinements since the initial proposal, the impact of the final rules will likely be overestimated to some extent.
- **Securitisation in the banking book (Sec BB):** This column measures the increase in the capital charge for securitisations in the banking book.
- **Stressed value-at-risk (sVaR):** This column measures the impact of the new stressed value-at-risk capital requirement in the trading book.
- **Equity standard measurement method (SMM):** This column measures the impact of the higher capital charge for certain equity exposures subject to the standardised measurement method in the trading book.
- **Incremental risk charge and securitisations in the trading book (IRC and Sec TB):** This column measures the impact of the incremental risk capital charge and the increase in capital charges for securitisations held in the trading book.

Overall risk-weighted assets increase by 24.5% for Group 1 banks. The main drivers of this increase are charges against counterparty credit risk exposures. Accordingly, banks that have significant exposures in these areas heavily influence the average increase in risk-weighted assets. Some banks also experience a larger than average increase in risk-weighted assets due to securitisation exposures in their banking books. Since Group 2 banks are less affected by the revised counterparty credit risk rules in particular, but also other changes in the regulatory framework, their risk-weighted assets increase by an average of just 4.1%.

Table 6

**Change in risk-weighted assets, in percent**

|               | N   | Overall | Def. of capital | CCR | Sec BB | sVaR | Equity SMM | IRC and Sec TB |
|---------------|-----|---------|-----------------|-----|--------|------|------------|----------------|
| Group 1 banks | 33  | 24.5    | 6.0             | 9.7 | 3.3    | 2.0  | 0.4        | 3.2            |
| Group 2 banks | 157 | 4.1     | 3.1             | 0.2 | 0.1    | 0.6  | 0.2        | 0.0            |

The average impact of the trading book and counterparty credit risk rules could not be estimated by all banks in the sample. Therefore, the sample of banks is smaller than the sample in Table 4 and the average definition of capital impact is different.

The changes in risk-weighted assets for counterparty credit risk and securitisations in the banking book are explained in the following sections. The Annex includes a more detailed technical analysis of the changes in risk-weighted assets that would result from the new trading book framework.

#### **4.2 Counterparty credit risk**

The calculation uses a modified version of the December 2009 proposed bond equivalent CVA charge and a threshold of US\$100 billion for applying the increased asset value correlation parameter to regulated financial institution exposures. The recalibration also removes the five times multiplier initially proposed in the consultative document but does not reflect any of the changes to the calculation of CVA in the final rules text.<sup>21</sup> As with other new requirements, the results vary across banks depending on their business model.

The number of banks included in the counterparty credit risk (CCR) analysis is smaller than the number taking part in the QIS as CCR is relevant only to banks engaged in OTC derivative activities or securities financing transactions (SFTs).

Based on the sample of banks included in this analysis, the new CCR requirements would result in a 11.3% average increase in credit risk-weighted assets for Group 1 banks and a significantly smaller 0.7% increase in credit risk-weighted assets for Group 2 banks. As shown in Table 6, the increase relative to overall risk-weighted assets would be 9.7% for Group 1 banks and 0.2% for Group 2 banks.

#### **4.3 Securitisations in the banking book**

Several Pillar 1 enhancements to the Basel II securitisation banking book framework were introduced in July 2009. Specifically, higher risk weights were introduced for re-securitisation exposures and credit conversion factors for short-term liquidity facilities to off-balance sheet conduits were increased. The effect of these enhancements was captured in the scope of the QIS data collection.

For Group 1 banks, the revised treatment of securitisations in the banking book would increase overall risk-weighted assets by 3.3%. As expected, the overall change in risk-weighted assets for Group 2 banks (a 0.1% increase) was very modest overall. Importantly, these changes reflect the changes for re-securitisations and do not reflect the transition from a deduction to a risk-weighting treatment for securitisation exposures in some jurisdictions. Such effects have been attributed to changes in the definition of capital (see Section 3).

### **5 Findings regarding the leverage ratio**

This section presents the results of the QIS based on the July 2010 GHOS agreement for a leverage ratio. The calculations use the new definition of Tier 1 capital as the numerator of the ratio. In the exposure calculation, a 100% credit conversion factor generally applies to off-balance sheet exposures (with the exception that a 10% credit conversion factor is applied to unconditionally cancellable commitments). Basel II netting and potential future

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<sup>21</sup> As noted above, this does not reflect all revisions since the initial proposal. Therefore, the impact from the final rules will likely be overestimated to some extent.

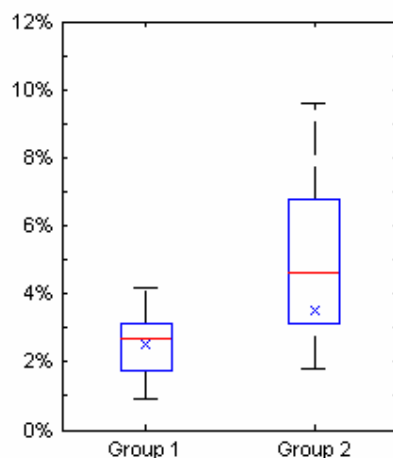


exposure calculated according to the current exposure method under Basel II are used for all derivatives.

An important element to understanding the results of the leverage ratio section of the QIS is the terminology typically used to describe a bank's leverage. Generally, when a bank is referred to as having more leverage, or being more leveraged, this refers to a multiple of exposures to capital (i.e. 50 times) as opposed to a ratio (i.e. 2.0%). Therefore, a bank with a high degree of leverage will have a low leverage ratio.

The average leverage ratio would be 2.5% and 3.5% for Group 1 and Group 2 banks respectively, indicating that large banks are considerably more leveraged than smaller banks. As with the effects of the other policy changes presented in this report there are significant variations within the Group 1 and Group 2 bank samples (refer to Chart 5).

Chart 5  
Leverage ratios



Independent of the risk-based ratio, approximately 60% of the Group 1 banks and 25% of the Group 2 banks in the sample would have been constrained by a 3% leverage ratio as of 31 December 2009 assuming the new definition of Tier 1 capital was already in place.

## 6 Liquidity

The BCBS has further strengthened its liquidity framework by developing two *minimum* standards for funding liquidity. Both standards have been significantly revised since the December 2009 consultative proposal, based on further analysis by the BCBS, feedback from the industry, and initial QIS results which gave an indication of the impact of the calibration of the standards. Revisions were made with the intent to right-size the stress scenario to capture a severe, yet not worst-case, scenario.

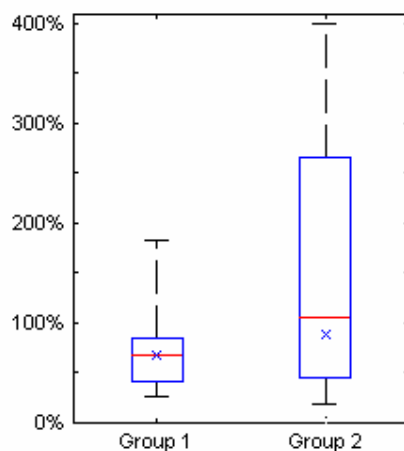
As announced by the BCBS in its 19 October 2010 press release, both the liquidity coverage ratio and the net stable funding ratio will be subject to an observation period and will include a review clause to address any unintended consequences.

## 6.1 Liquidity coverage ratio

One of the standards is a 30-day liquidity coverage ratio (LCR) which is intended to promote short-term resilience to potential liquidity disruptions. The liquidity coverage ratio was designed to require global banks to have sufficient high quality liquid assets to withstand a stressed 30-day funding scenario specified by supervisors. The LCR denominator is comprised of cash outflows less cash inflows that are expected to occur in a severe stress scenario, while the numerator consists of a stock of unencumbered, high quality liquid assets that must be available to cover any net outflow.

The average LCR would be 67% for Group 1 banks and 87% for Group 2 banks.<sup>22</sup> These aggregate numbers do not reflect the range of results across the banks. Chart 6 below gives an indication of the dispersion of the banks' results.

Chart 6  
LCR



For the banks in the sample, QIS results show a picture of the banks represented in the sample at the end of 2009, with a shortfall of liquid assets of €1.0 trillion, if banks were to make no changes whatsoever to their current liquidity risk profile. This number is reflective only of the aggregate shortfall for banks that are below the 100% requirement and does not reflect surplus liquid assets at banks above the 100% requirement. Banks that currently are below the 100% required minimum have until 2015 to meet the standard by scaling back business activities which are most vulnerable to a significant short-term liquidity shock or by lengthening the term of their funding beyond thirty days. They may also increase their holdings of liquid assets.

The key components of outflows and inflows are shown in Table 7, along with the composition of high quality assets currently held at banks depicted in Charts 7 and 8 below.

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<sup>22</sup> Banks' LCRs have been capped at 400%, both for the calculation of the averages and in the chart.

Table 7

**LCR outflows and inflows as a percentage of gross outflows**

| <b>Category</b>  | <b>Group 1 banks</b> | <b>Group 2 banks</b> |
|--|----------------------|----------------------|
| <b>Outflows from...</b>  |                      |                      |
| Unsecured retail and small business customers  | 7.6%                 | 18.0%                |
| Unsecured non-financial corporates   | 12.2%                | 10.2%                |
| Unsecured financial institutions   | 29.2%                | 26.7%                |
| Unsecured sovereign, central bank, public sector entities (PSEs) and other counterparties  | 3.8%                 | 2.9%                 |
| Secured funding  | 7.6%                 | 3.6%                 |
| Collateral, securitisations and own debt   | 16.9%                | 10.0%                |
| Credit and liquidity facilities  | 14.3%                | 8.8%                 |
| Other cash outflows including derivative payables  | 8.5%                 | 19.7%                |
| <b>Total outflows*</b>   | <b>100.0%</b>        | <b>100.0%</b>        |
| <b>Inflows from...</b>   |                      |                      |
| Retail and small business customers  | 2.7%                 | 11.8%                |
| Non-financial corporates   | 3.4%                 | 6.8%                 |
| Financial institutions   | 9.6%                 | 22.7%                |
| Other entities   | 0.9%                 | 1.4%                 |
| Secured lending  | 6.2%                 | 1.4%                 |
| Asset-backed commercial paper (ABCP), conduits, structured investment vehicles (SIVs) and own account, performing security cash flow | 1.8%                 | 1.4%                 |
| Other cash inflows including derivative receivables  | 8.8%                 | 11.1%                |
| <b>Total inflows</b>   | <b>28.8%**</b>       | <b>38.1%**</b>       |

\* May contain rounding differences. \*\* For the purposes of this table, the 75% cap is only applied to the "total inflow" category. Therefore, the percentages in the inflow categories do not add up to the "total inflow" category.

Chart 7

**Composition of holdings of liquid assets of banks, Group 1 banks<sup>23</sup>**

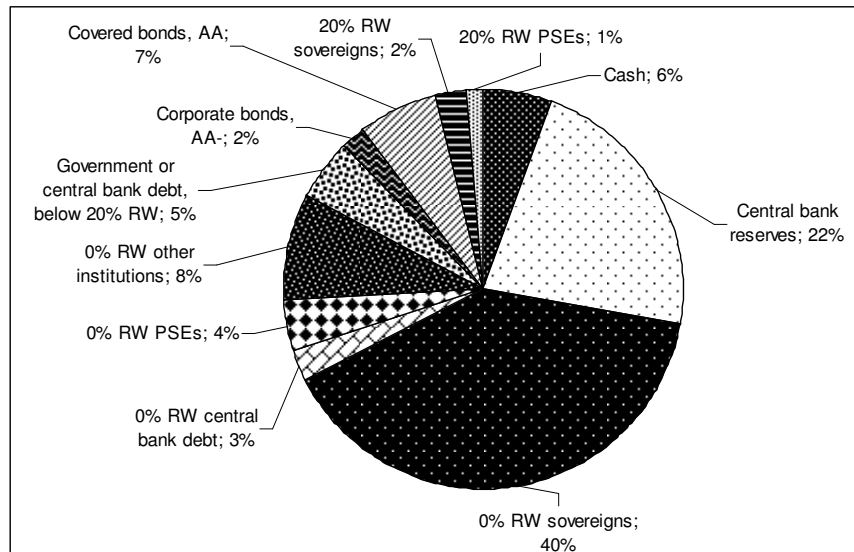
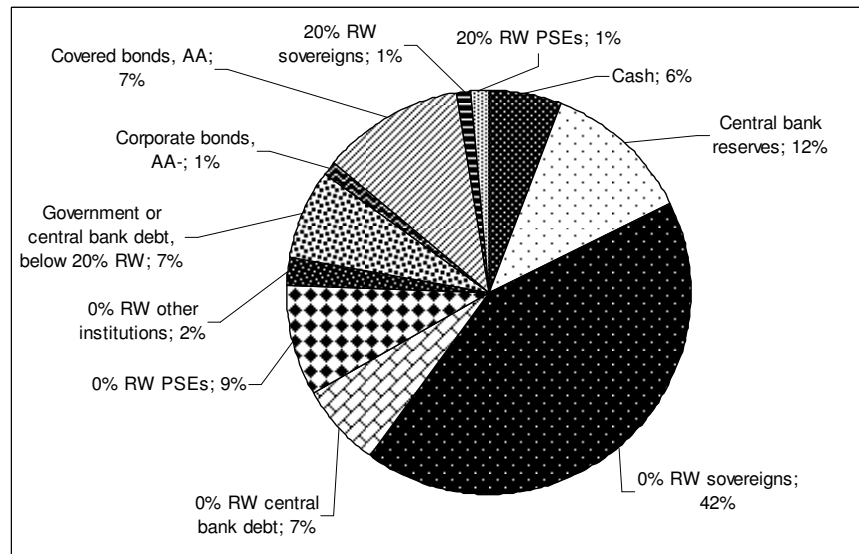


Chart 8

**Composition of holdings of liquid assets of banks, Group 2 banks<sup>23</sup>**



<sup>23</sup> RW: Risk weight; PSE: Public sector entities.

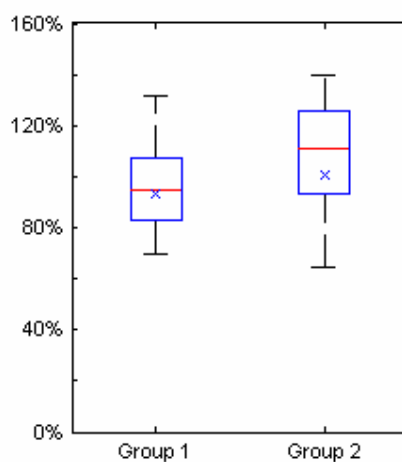
## 6.2 Net stable funding ratio

The second standard is the net stable funding ratio (NSFR), a longer-term structural ratio to address liquidity mismatches and provide incentives for banks to use stable sources to fund their activities.

The NSFR for Group 1 banks would be 91% on average. For Group 2 banks, the average NSFR would be slightly higher than that of the Group 1 sample at 94%. Chart 7 shows the distribution of the results for Group 1 and Group 2 banks.<sup>24</sup>

Chart 9

### NSFR



Current QIS results show that banks in the sample had an estimated shortfall of stable funding of €1.8 trillion at the end of 2009, if banks were to make no changes whatsoever to their current funding structure. This number is only reflective of the aggregate shortfall for banks that are below the 100% requirement and does not reflect any surplus stable funding at banks above the 100% requirement. Banks that currently are below the 100% required minimum have until 2018 to meet the standard and can take a number of measures to do so, including by lengthening the term of their funding, reducing maturity mismatch, or scaling back activities which are most vulnerable to liquidity risk in periods of stress.

It should be noted that the estimated shortfalls in the LCR and the NSFR are not additive, as decreasing the shortfall in one standard may result in a similar decrease in the shortfall of the other standard, depending on the steps taken to decrease the shortfall.

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<sup>24</sup> One bank was removed from Chart 7 as its result greatly exceeded the scale of the chart.

## Annex

### Changes in risk-weighted assets in the trading book

With regard to the trading book, the scope of the QIS included consideration of the following treatments: (i) the stressed VaR; (ii) the capital charge for incremental risk; and (iii) the capital charges for securitisation exposures, including the correlation trading portfolio. The capital charges for securitisations that are not included in the correlation trading portfolio have generally been calculated as the larger of the capital charges for net long and net short positions. This is in line with the transitional treatment to be applied from 31 December 2011 to 31 December 2013 as announced in the BCBS's 18 June 2010 press release.<sup>25</sup> After the transition period, the capital charge will change to the sum of the capital charges for the net long and net short positions. However, applying this treatment now would substantially overstate the impact as many legacy positions will roll off or be managed down. To the extent capital charges for the correlation trading portfolio are calculated using a comprehensive risk model, they include the impact of the 8% floor in the standardised measurement method.

The original QIS questionnaire and instructions did not reflect subsequent decisions by the BCBS regarding three interpretive issues: (i) the application of market value to derivative positions; (ii) the application of off-setting under the standardised measurement method; and (iii) the application of the maximum possible loss principle. Furthermore, the original data collection was not sufficient to assess the impact of basing the standardised approach capital charges for securitisations outside the correlation trading portfolio on the maximum of the capital charges for net long and net short positions during the transitional period. While some banks provided additional data in a follow-up study in May 2010, not all banks were able to provide these data. For banks that did not provide data in the follow-up study or could not fully reflect the three interpretive issues in their calculations, capital charges for securitisation exposures outside the correlation trading portfolio, and capital charges for correlation trading exposures subject to the standardised measurement method as well as the level of the 8% floor, might be overstated.

Table 8 shows the estimated impact of the revised trading book capital charges on overall risk-weighted assets. It is important to note that the sample of banks that provided trading book data in the QIS is larger than the sample of banks included in the Trading Book Group's impact studies. As the additional banks are not expected to be as active in securitisation trading and especially correlation trading, the average impact is expected to be lower.

Stressed value-at-risk (column "sVaR") would result in an average increase in overall capital requirements of 2.1%. However, there is significant dispersion of the increases across Group 1 banks with a maximum of 15.1% for one bank in the sample. The elimination of the preferential 4% risk weight for certain equity exposures subject to the standardised measurement method (column "Equity") would have almost no impact on Group 1 banks. The incremental and comprehensive risk capital charges and the capital charges for securitisation exposures in the trading book would contribute on average 4.3% to the increase of overall capital requirements with a maximum of 45.3% for one bank. The overall average increase is broken down further as follows: the incremental risk capital charge

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<sup>25</sup> "Adjustments to the Basel II market risk framework announced by the Basel Committee" ([www.bis.org/press/p100618.htm](http://www.bis.org/press/p100618.htm)).

(column “IRC”) would contribute 1.2%; the capital charge for non-correlation trading securitisation exposures according to the standardised measurement method (column “SMM non-CTP”) would contribute 2.4%; the comprehensive risk model for correlation trading exposures (including the floor, column “Correlation trading CRM”) would contribute 1.3%; the standardised measurement method for correlation trading exposures not included in the model (column “Correlation trading SMM”) would contribute 0.1%; and the previous capital charges (resulting from the event risk surcharge and previous standardised or VaR-based charges for the specific risk capital requirements of securitisations) would reduce the impact of the charges by 0.8%.

Table 8

**Increase in trading book-related capital charges relative to overall capital requirements, Group 1 banks, in percent**

|         | SVaR | Equity | IRC and securitisation |     |             |                     |     | Prev. charge |
|---------|------|--------|------------------------|-----|-------------|---------------------|-----|--------------|
|         |      |        | Overall                | IRC | SMM non-CTP | Correlation trading |     |              |
|         |      |        |                        |     |             | CRM                 | SMM |              |
| Average | 2.1  | 0.3    | 4.3                    | 1.2 | 2.4         | 1.3                 | 0.1 | -0.8         |

This table includes all banks providing data on the trading book changes, irrespective of whether or not they also provided data on all the other policy issues with risk-weighted asset impact. Therefore, the results are not comparable to the last three columns of Table 6.

Across the sample of Group 1 banks providing data, the stressed value-at-risk would be on average 239% of the value-at-risk provided by firms for a non-stressed period, typically the period ending 31 December 2006. This ratio would range from as low as 100% to a high of 815%, with a median of 190% and a standard deviation of 134%. Some additional summary statistics regarding the new trading book capital requirements compared to current market risk capital requirements are included in Table 9.

Table 9

**Increase in trading book-related capital charges relative to current market risk requirements, Group 1 banks, in percent**

|                 | sVaR  | IRC   | SMM non-CTP | Correlation trading |      |
|-----------------|-------|-------|-------------|---------------------|------|
|                 |       |       |             | CRM                 | SMM  |
| Number of banks | 32    | 23    | 25          | 12                  | 8    |
| Median          | 40.6  | 29.6  | 19.3        | 39.2                | 5.4  |
| Minimum         | 8.5   | 4.2   | 0.2         | 19.8                | 2.3  |
| Maximum         | 157.4 | 169.0 | 484.8       | 206.3               | 30.8 |
| StDev           | 38.8  | 49.0  | 105.2       | 60.1                | 10.7 |