27 May 2003

Supplementary Information on QIS3[1]

An overview of the results of the QIS3 study was published on 5 May 2003. Following public interest in the QIS3 results the Basel Committee on Banking Supervision (the Committee) has decided to publish a further supplementary document which provides more detail on some areas of the results. This paper focuses on the G10 results (with the exception of 1. below) – the following information is provided:

1. The number of banks completing each approach across the geographic groupings.

2. The percentage change in capital requirements and contributions for the new approaches **after** CP3 modifications.

3. A comparison of the change in capital requirements for the Standardised and IRB Foundation approaches using a static sample i.e. the sample of banks which completed IRB Foundation.

4. Charts showing the average risk-weight, by bank, for the corporate, sovereign, interbank, non-mortgage retail and retail mortgage portfolios for each approach – current, Standardised, IRB Foundation and IRB Advanced.

5. The average maturity (in years) for exposures in the corporate, sovereign and interbank portfolios in IRB Advanced for countries which used an implicit maturity assumption in IRB Foundation.

6. For each bank, the average PD plotted against the average LGD for retail mortgage exposures.

7. For each bank, the average PD against the percentage of defaulted exposures for the corporate, sovereign, interbank, non-mortgage retail and retail mortgage portfolios in IRB Foundation.

8. For each bank, the average LGD for corporate, sovereign and interbank exposures in IRB Advanced.

9. For each bank, the average EAD for corporate, sovereign and interbank exposures in IRB Advanced.

As in the QIS3 Overview, banks have been split into two groups - Group 1 banks are large, diversified and internationally active with Tier 1 capital in excess of €3bn, and Group 2 banks are generally smaller and, in many cases, more specialised. The G10 results have been

[1] All the results in this paper are based on results post CP3 modifications.

aggregated at two levels – first within individual countries, and then the country results were aggregated across the G10. The Group 1 results for each country are an average of the individual bank results weighted by the sum of their Tier 1 and Tier 2 capital less supervisory deductions. The Group 2 country results are calculated using simple averages across the banks. Simple averages were used across countries to provide the overall G10 results.

Overall, the Committee believes that the QIS3 results tend to overstate the minimum capital requirements which might be anticipated on implementation. In addition to the points made in the QIS3 Overview paper (page 2) the following factors contribute to this:

- The new IRB treatment for high volatility commercial real estate was not incorporated in the QIS3 results. It is expected that the separate risk-weight function for these exposures will decrease capital requirements.
- Banks have not been able to identify all unconditionally cancelable commitments which would qualify for a 0% credit conversion factor.

1. Number of banks completing each approach (Group 1 and Group 2 banks combined)

Approach	G10	EU	Other	Total
Standardised	185	166	140	365
IRB Foundation	109	89	28	159
IRB Advanced	57	32	11	74

Note: The G10 includes 9 EU countries

2. The change in capital requirements after CP3 modifications

Due to space constraints, in the QIS3 Overview only a limited number of portfolios were included in the ‘changes in capital requirements’ tables. In addition, the percentage change in capital requirements for individual portfolios was only quoted for results prior to CP3 modifications.[2] The following tables provide the percentage change in capital requirements (and the average contribution[3] to the change) for **all** portfolios across the new approaches based on results **after** CP3 modifications.

[2] The initial QIS3 3 results were adjusted to reflect some targeted changes to the Third Consultative Paper (CP3). Refer to QIS3 Overview (page 1) for further detail (available at http://www.bis.org/bcbs/qis/qis3results.pdf)

[3] The contribution shows the percentage change to the total capital requirement resulting from that specific portfolio. This is derived by multiplying the percentage change in capital requirements for the portfolio by the proportion of capital under the current Accord accounted for by that portfolio.

Standardised Approach

Portfolio	Group 1		Group 2	
	% change in capital requirement	Contribution	% change in capital requirement	Contribution
Corporate	1%	1%	-10%	-1%
Sovereign[4]	19%	0%	1%	0%
Bank	43%	2%	15%	0%
Retail (total)	-25%	-5%	-23%	-10%
- Residential Mortgages	-27%	-3%	-20%	-4%
- Non-mortgage retail	-23%	-2%	-20%	-4%
- Revolving exposures	-14%	0%	-8%	-2%
SME (total)	-4%	-1%	-6%	-2%
- SME Corporate	1%	0%	1%	0%
- SME retail	-13%	-1%	-12%	-2%
Specialised lending	2%	0%	1%	0%
Equity	6%	0%	8%	0%
Purchased receivables	5%	0%	0%	0%
Trading book	12%	1%	4%	0%
Securitised assets	86%	1%	51%	0%
Investments in related entities (RWA approximation)	12%	1%	29%	1%
Overall credit risk	0%	0%	-11%	-11%
Operational risk		10%		15%
Overall change	11%	11%	3%	3%

[4] Average changes in capital for the sovereign portfolio have been calculated excluding those banks with a zero or very low capital requirement under the current Accord due to all – or the vast majority – of sovereign exposures being to counterparties with a zero risk weight. For these banks, the percentage change in capital is infinite or very large, which does not accurately reflect a requirement which remains relatively modest, hence their exclusion.

IRB Approaches

	IRB Foundation				IRB Advanced	
Portfolio	**Group 1**		**Group 2**		**Group 1**	
	% change in capital requirement	Contribution	% change in capital requirement	Contribution	% change in capital requirement	Contribution
Corporate	-9%	-2%	-27%	-4%	-14%	-4%
Sovereign[5]	47%	2%	51%	0%	28%	1%
Bank	45%	2%	-5%	-1%	16%	0%
Retail (total)	-45%	-9%	-44%	-17%	-49%	-9%
- Residential Mortgages	-53%	-6%	-44%	-13%	-58%	-6%
- Non-mortgage retail	-34%	-3%	-26%	-4%	-41%	-3%
- Revolving exposures	-7%	0%	-33%	0%	8%	0%
SME (total)	-15%	-2%	-17%	-4%	-13%	-3%
- SME Corporate	-11%	-1%	-3%	-1%	-3%	-1%
- SME retail	-26%	-1%	-24%	-3%	-31%	-2%
Specialised lending	27%	1%	22%	0%	31%	1%
Equity	115%	2%	81%	2%	114%	2%
Purchased receivables	3%	0%	-6%	0%	-1%	0%
Trading book	4%	0%	4%	0%	2%	0%
Securitised assets	104%	0%	62%	-1%	130%	0%
Investments in related entities (RWA approximation)	12%	1%	44%	2%	16%	1%
General provisions	0%	-1%	0%	-3%	0%	-2%
Overall credit risk	-7%	-7%	-26%	-27%	-13%	-13%
Operational risk		10%		7%		11%
Overall change	3%	3%	-19%	-19%	-2%	-2%

3. Change in capital requirements for Standardised and IRB Foundation approaches for an identical sample

The following table shows the Standardised and IRB Foundation results for the sample of banks which completed the **Foundation** approach. The Standardised numbers are not identical to those in the QIS3 Overview report as some Standardised banks did not complete the IRB approaches – these banks have been dropped from the sample.

[5] Average changes in capital for the sovereign portfolio have been calculated excluding those banks with a zero or very low capital requirement under the current Accord due to all – or the vast majority – of sovereign exposures being to counterparties with a zero risk weight. For these banks, the percentage change in capital is infinite or very large, which does not accurately reflect a requirement which remains relatively modest, hence their exclusion.

Comparison of change in capital requirements for Standardised and IRB Foundation approaches

Portfolio	Group 1		Group 2	
	Standardised	IRB Foundation	Standardised	IRB Foundation
Corporate	1%	-2%	-1%	-4%
Sovereign	0%	2%	0%	0%
Bank	2%	2%	1%	-1%
Retail (total)	-5%	-9%	-6%	-17%
- Residential Mortgages	-3%	-6%	-3%	-13%
- Non-mortgage retail	-2%	-3%	-2%	-4%
- Revolving exposures	0%	0%	-1%	0%
SME (total)	-1%	-2%	-1%	-4%
- SME Corporate	0%	-1%	0%	-1%
- SME retail	-1%	-1%	-1%	-3%
Specialised lending	0%	1%	0%	0%
Equity	0%	2%	0%	2%
Purchased receivables	0%	0%	0%	0%
Trading book	1%	0%	0%	0%
Securitised assets	1%	1%	-1%	1%
Investments in related entities (RWA approximation)	1%	-1%	1%	-3%
General provisions		-2%		-2%
Overall credit risk	0%	-7%	-6%	-27%
Operational risk	10%	10%	7%	7%
Overall change	10%	3%	1%	-19%

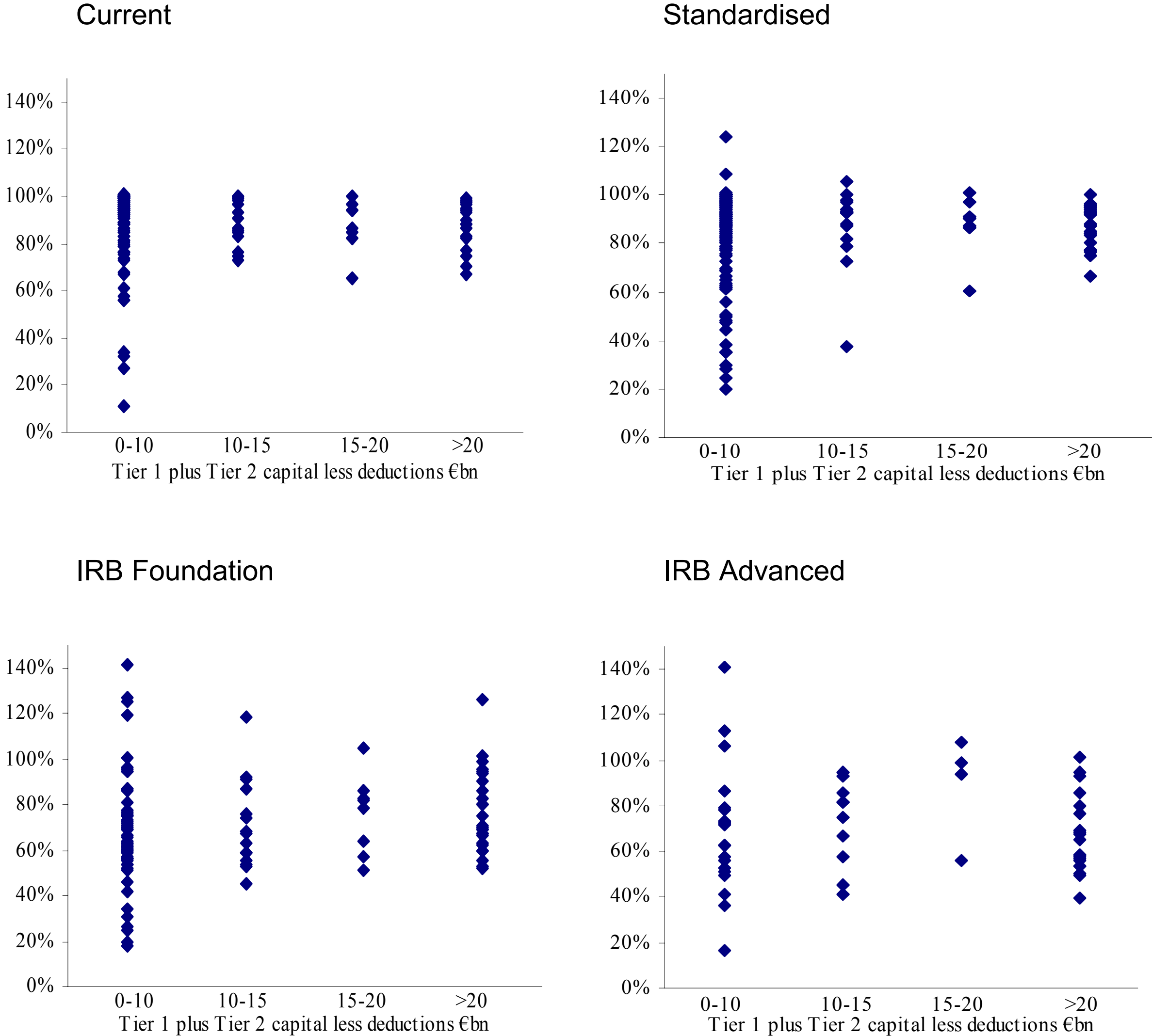
Overall, the table shows that there is a strong incentive to move from the Standardised to the Foundation approach – especially for Group 2 banks. Within individual portfolios there are a limited number of cases where capital requirements increase between the Standardised and Foundation approaches.

4. Average risk-weight for individual portfolios across all approaches

Following the QIS3 exercise there were some comments about the variation in results from the proposed New Accord. The following charts provide the average **risk-weight** (calculated

as total risk-weighted assets divided by exposures[6]) for drawn and off-balance sheet exposures. This facilitates a comparison of the variation in risk-weights across the different approaches. For all charts Group 1 and Group 2 banks are grouped together.

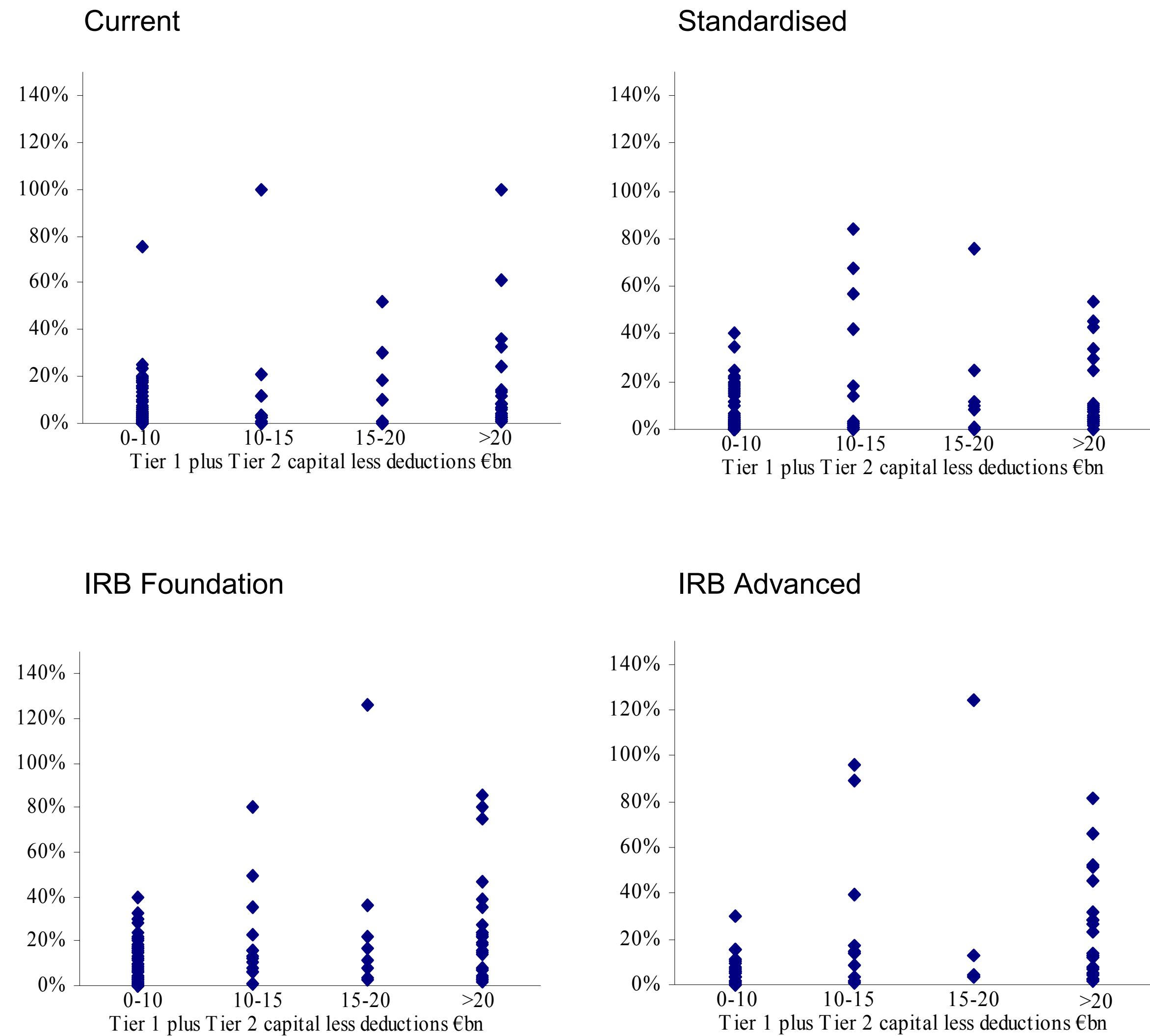
Corporate portfolio



The charts show that the level of variability is not significantly increased when moving between the current and Standardised approaches. There is a small increase in variability when moving from the Standardised to the IRB approaches – as would be expected given the increased risk sensitivity of these approaches.

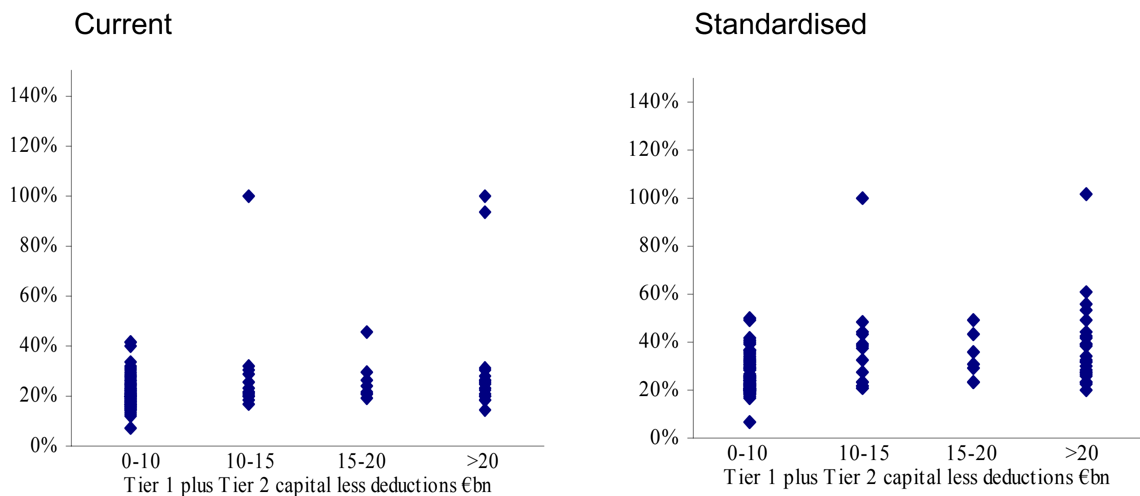
[6] For the current and standardised charts exposures are net of specific provisions, for the IRB approaches exposures are gross of provisions. Other off-balance sheet exposures are amounts after credit conversion.

Sovereign portfolio

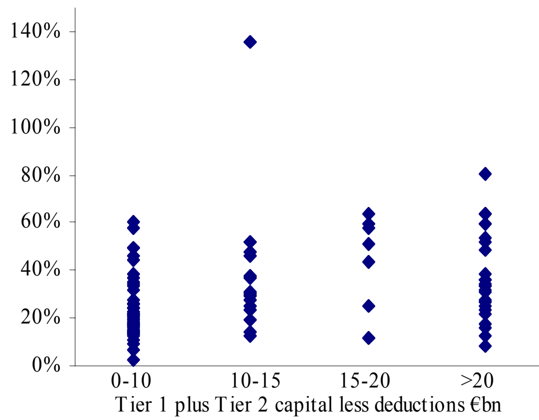


The charts show hardly any increase in variability when moving between the approaches.

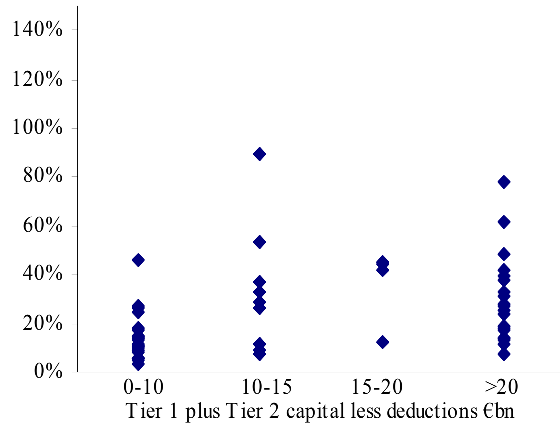
Interbank portfolio



IRB Foundation



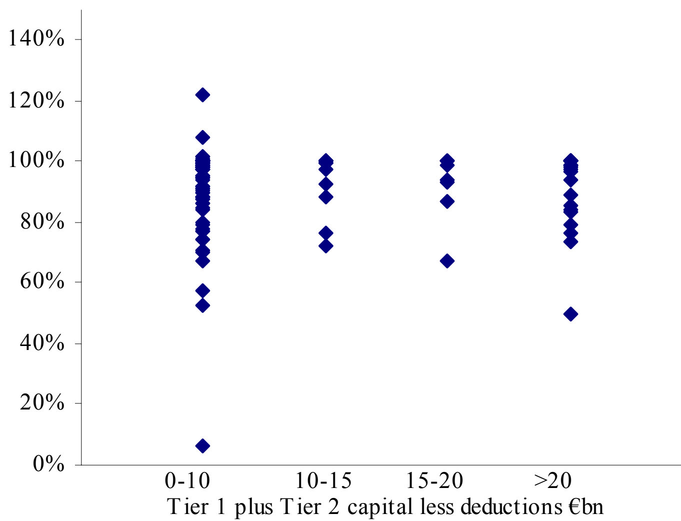
IRB Advanced



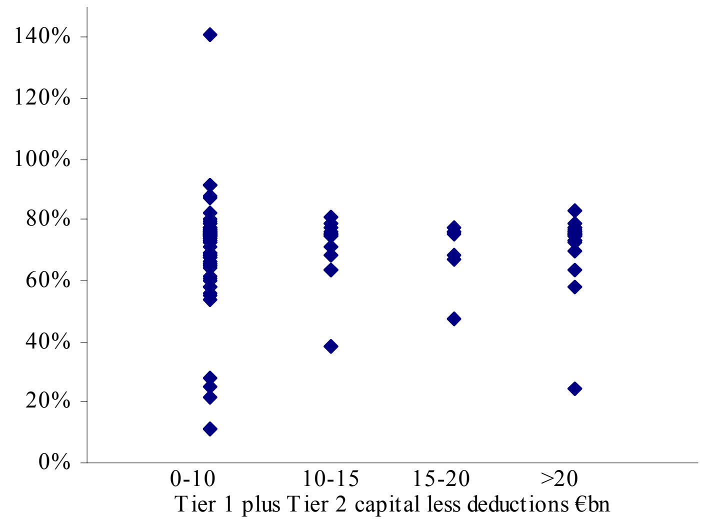
Again, the charts show only a small increase in variability when moving from the current to Standardised and IRB approaches.

Non-mortgage retail portfolio (not including qualifying revolving exposures)

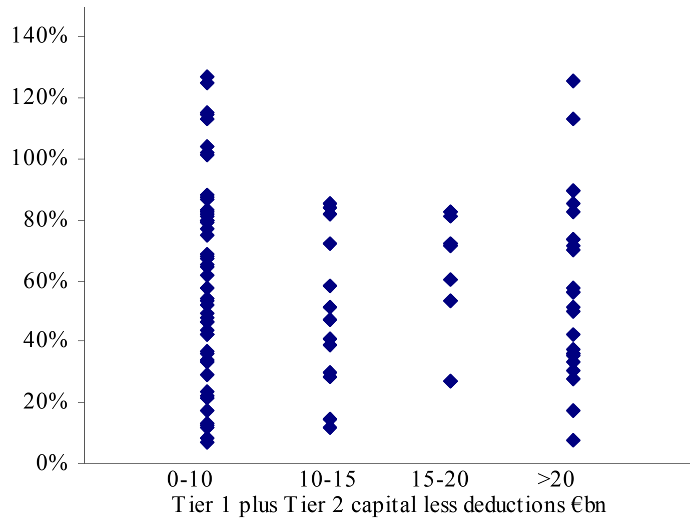
Current



Standardised

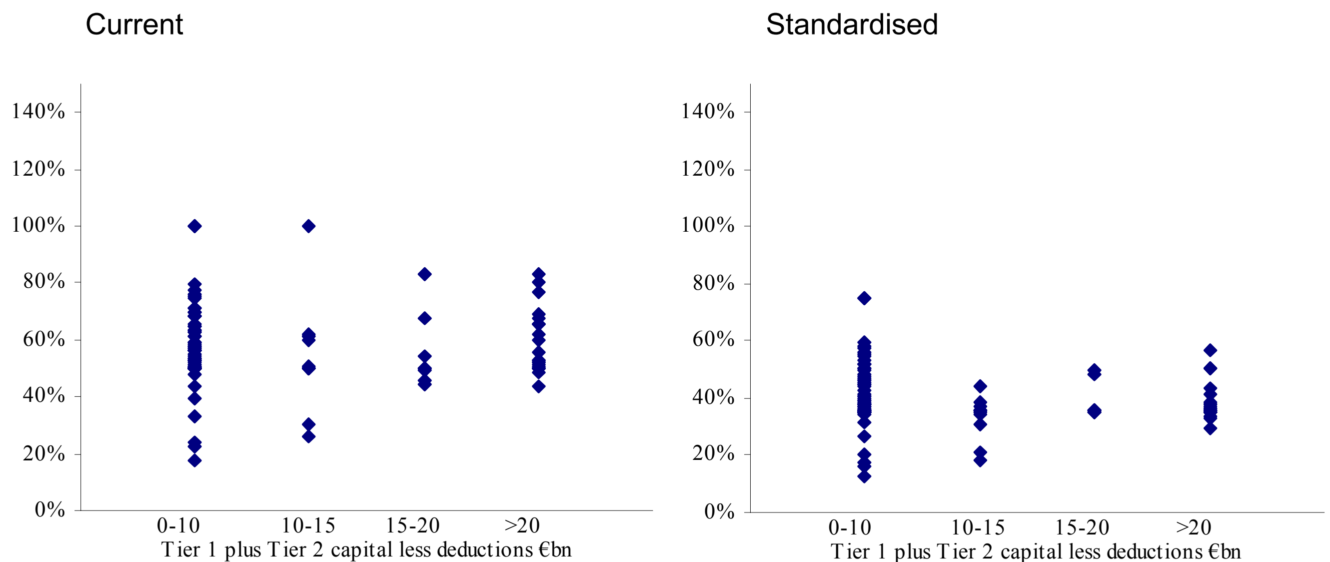


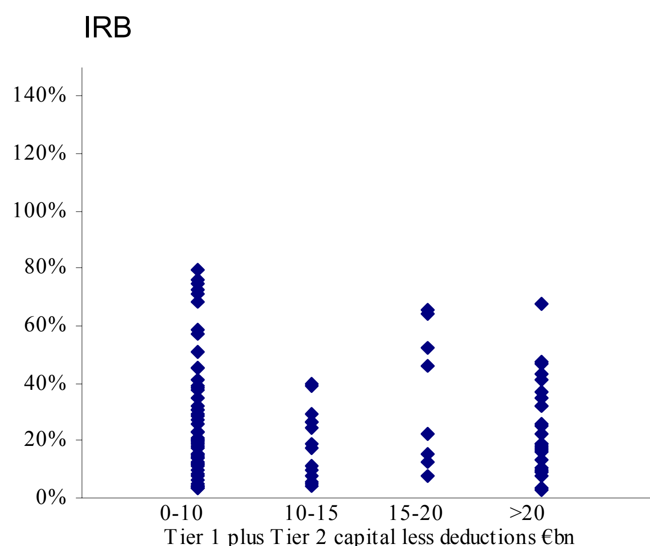
IRB



The non-mortgage retail portfolio shows a similar level of variability when moving from the current to Standardised approach. There is a larger variation in average risk-weight under the IRB approach. In the IRB approach, banks focusing on higher risk exposures see large increases in capital requirements while banks with high quality and highly collateralised exposures see a decrease in requirements.

Retail mortgage portfolio





Some of the variability in average risk-weight for the retail mortgage portfolio is accounted for by different national practices. Countries with Government guarantees for retail mortgage exposures allow banks to use a lower risk-weight in both the current and Standardised approaches (the standard risk-weight used is generally 50% and 35% for the current and Standardised approaches respectively). In addition, some countries require a risk-weight greater than 50% for some retail mortgage exposures under the current Accord. The charts above show a decrease in variability when moving from the current to Standardised approach.

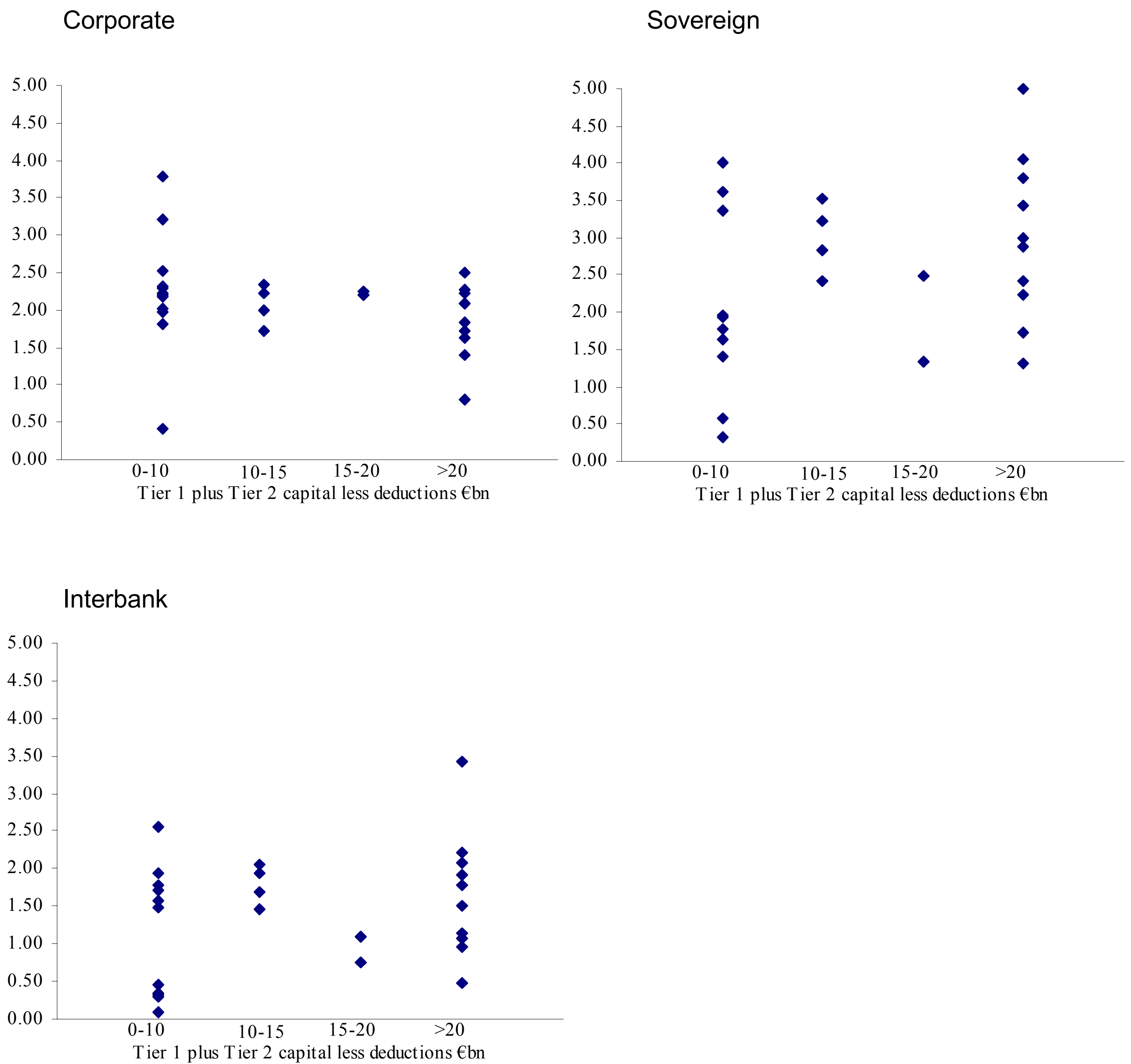
Overall, the charts above show that the average risk-weight does vary across banks. However, the level of variability does not dramatically increase when moving to the new approaches. There is some increase in variability under the IRB approach – this would be expected given that this approach is more risk sensitive.

5. Maturity for countries using an implicit adjustment in IRB Foundation

The purpose of this section is to consider the impact of the national discretion maturity option in IRB Foundation. National supervisors can opt for banks either to use an implicit assumption of 2.5 years[7] for all exposures or to allow banks to use an explicit adjustment which reflects the actual maturity of the exposure. In the Advanced IRB all banks use an explicit maturity adjustment. Seven countries opted to use the implicit assumption in IRB Foundation. The following charts show the actual average maturity in the Advanced approach (the average maturity for each portfolio[8]) for Group 1 banks following an implicit maturity assumption in the Foundation approach. This gives an indication of the actual maturity versus the 2.5 year assumption imposed in Foundation.

[7] In CP3 the implicit assumption for repo exposures has been changed to 0.5 years.

[8] The average maturity is based on all exposures – including repo and OTC derivatives.

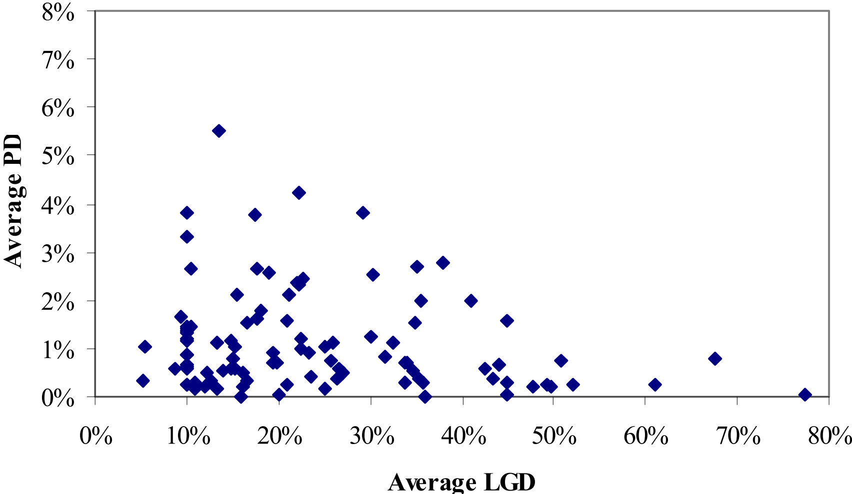


The corporate chart shows there is a significant clustering around the implicit maturity assumption of 2.5 years. For the sovereign portfolio there is a wider range in the average maturity with a fairly even dispersion above and below 2.5 years. For the interbank portfolio the explicit maturity is generally below 2.5 years.

6. Average PD and LGD for the retail mortgage portfolio (Group 1 and Group 2 banks)

The following chart shows the average PD[9] plotted against the average LGD for the retail mortgage portfolio for banks completing the IRB Foundation approach.

Retail Mortgage – Average PD and LGD

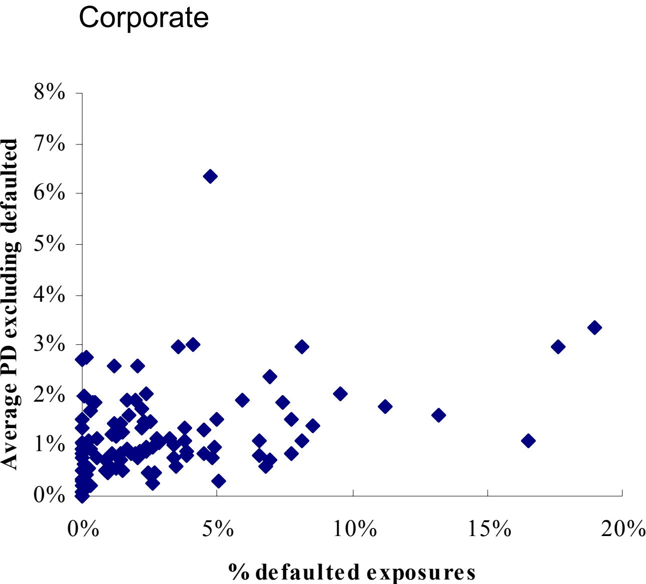


9 Average PD is calculated excluding defaulted exposures.

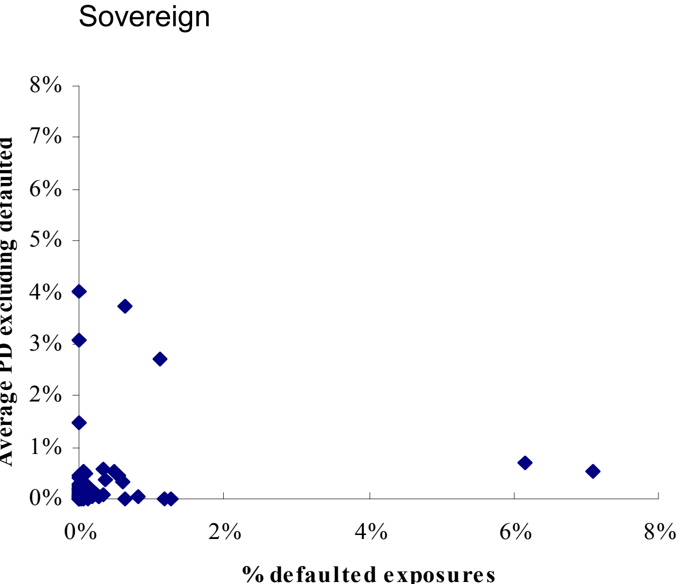
7. Average PD against the percentage of defaulted exposures (Group 1 and Group 2 banks)

The charts below show the relationship between the average PD[10] across all non-defaulted exposures in each portfolio and the proportion of defaulted[11] exposures (i.e. defaulted exposures as a percentage of total exposures for each portfolio) for the IRB Foundation approach.

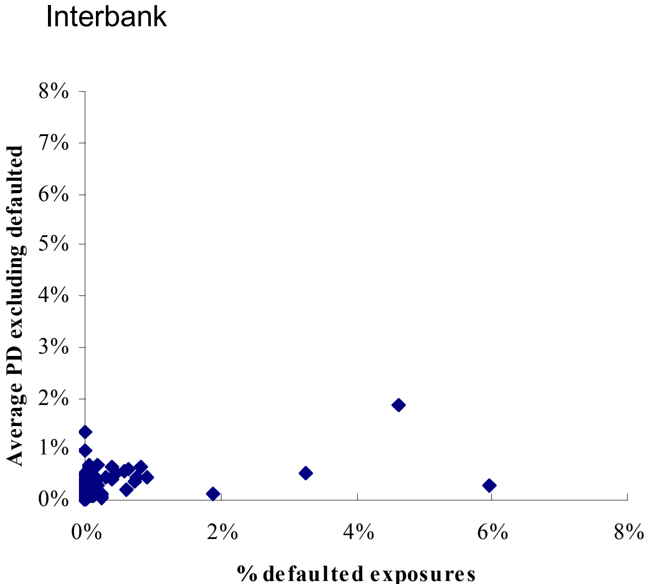
Corporate



Sovereign



Interbank



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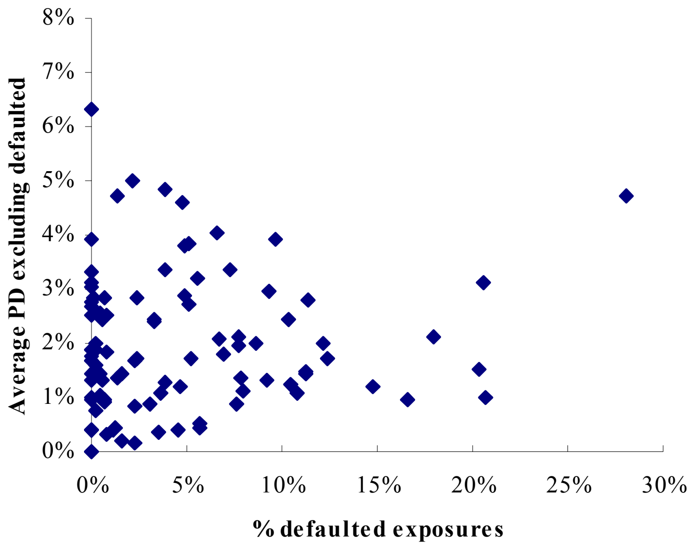
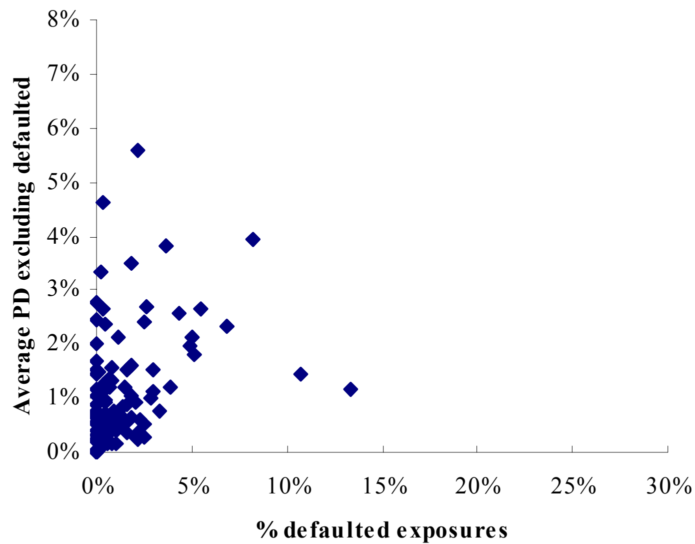
[10] Average PD is calculated excluding defaulted exposures.

[11] Exposures are considered defaulted if the PD is greater than 90%.

Non-mortgage retail (not including qualifying revolving)



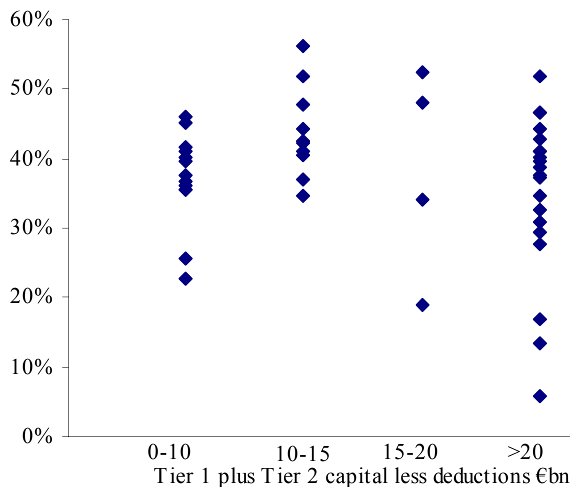
Retail mortgage[12]



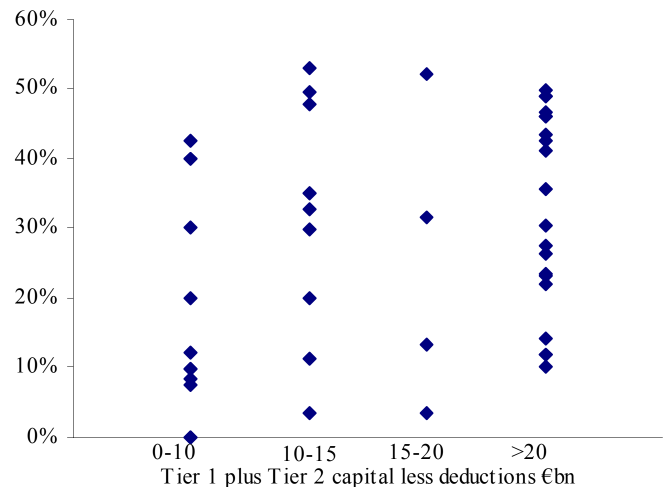
The sovereign and interbank charts show that both the average PD and percentage of defaulted exposures are generally low. The corporate and non-mortgage retail charts show much more variability, although generally banks with higher average PDs tend to have a greater proportion of defaulted exposures.

8. Average LGD in Advanced IRB (Group 1 banks)

Corporate

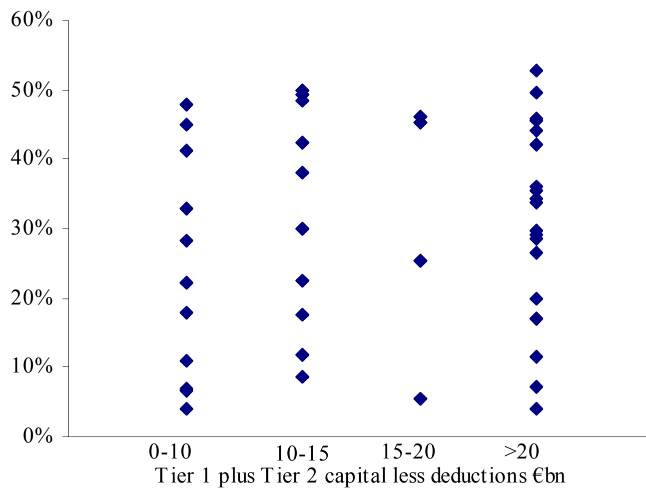


Sovereign



[12] For the retail mortgage chart only drawn and off-balance sheet exposures are considered. The level of retail mortgage commitments is small.

Interbank



There is a wide variation in the average LGD for all three portfolios. The averages for the sovereign and interbank portfolios tend to be lower than those for the corporate portfolio, which shows a greater clustering around 40%.

9. Average EAD in Advanced IRB (Group 1 banks)