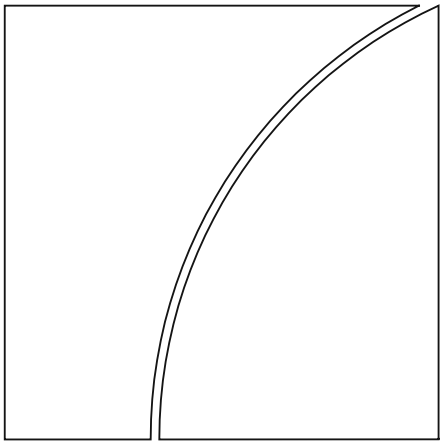
Basel Committee
on Banking Supervision



Fundamental review of the trading book – interim impact analysis

November 2015

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1. Background

This report presents a second assessment on the capital impact of the revised market risk framework proposed in the *Fundamental review of the trading book* (FRTB).[1] The report compares the proposed reforms with the current market risk capital framework.[2]

The Basel Committee conducted a trading book quantitative impact study (QIS) using 31 December 2014 data to provide a better understanding of the capital impact and/or implementation dynamics in the following key areas:

(i) Changes in bank capital ratios under the proposed market risk framework compared to the current market risk framework; and how this change relates to the overall Basel III capital requirement.

(ii) Changes in bank capital ratios under the proposed internally-modelled approaches, including the new Expected Shortfall (ES) approach, Default Risk Charge (DRC) and capital charge for non-modellable risk factors (NMRFs).

(iii) Changes in bank capital ratios under the proposed standardised approach (SA).

(iv) A comparison of capital charges under the proposed internally-modelled approaches compared to the standardised approach.

(v) Banks' performance against the proposed profit and loss (P&L) attribution measure[3] for assessing internal model robustness.

This QIS exercise does not test the capital impact of the proposed standardised approach treatment for all securitisation exposures in the trading book. An internal model approach for securitisation exposures in the trading book is not provided.

Coverage statistics

This report was based on information that was obtained by voluntary and confidential data submissions from individual banks to their national supervisors. The report is based on data as of a reporting date of 31 December 2014. Overall, 78 banks from 26 jurisdictions participated in this trading book QIS, comprising 66 Group 1 banks (defined as internationally active banks that have Tier 1 capital of more than €3 billion) and 12 Group 2 banks (ie all other banks).

[1] Basel Committee on Banking Supervision:

- *Fundamental review of the trading book: A revised market risk framework*, consultative document, October 2013, www.bis.org/publ/bcbs265.htm
- *Fundamental review of the trading book: Outstanding issues,* consultative document, December 2014, www.bis.org/bcbs/publ/d305.htm

[2] Basel Committee on Banking Supervision:

- *Revisions to the Basel II market risk framework*, July 2009, www.bis.org/publ/bcbs158.htm.
- *Guidelines for computing capital for incremental risk in the trading book*, July 2009, www.bis.org/publ/bcbs159.htm.

[3] The objective of the P&L attribution measure is to compare P&L based on front office pricing systems with P&L based on internal risk models. If the two measures differ significantly, the test indicates potential weaknesses in risk measurement models.

Number of banks in the sample reporting data for the trading book Table 1

	Group 1	Group 2
Argentina	0	0
Australia	2	0
Belgium	2	1
Brazil	4	0
Canada	6	0
China	0	0
France	5	1
Germany	6	2
India	1	0
Indonesia	0	0
Italy	2	0
Japan	9	0
Korea	0	0
Luxembourg	0	0
Mexico	0	0
Netherlands	3	5
Russia	1	0
Saudi Arabia	0	0
Singapore	3	0
South Africa	3	1
Spain	0	0
Sweden	3	0
Switzerland	2	2
Turkey	1	0
United Kingdom	4	0
United States	9	0
Total	**66**	**12**

Source: Basel Committee on Banking Supervision

2. Key findings

2.1 Capital impact

Based on a sample of 44 banks that provided usable data for the study, the change in total non-securitisation market risk capital charges would be equivalent to a 4.7% share of the overall Basel III *minimum* capital requirement (ie for credit risk, operational risk, market risk, etc). When the bank with the largest percentage change in market risk-weighted assets is excluded from the sample, the change in

total market risk capital charges translates to a 2.3% share of overall Basel III minimum regulatory capital (see Graph 1a).

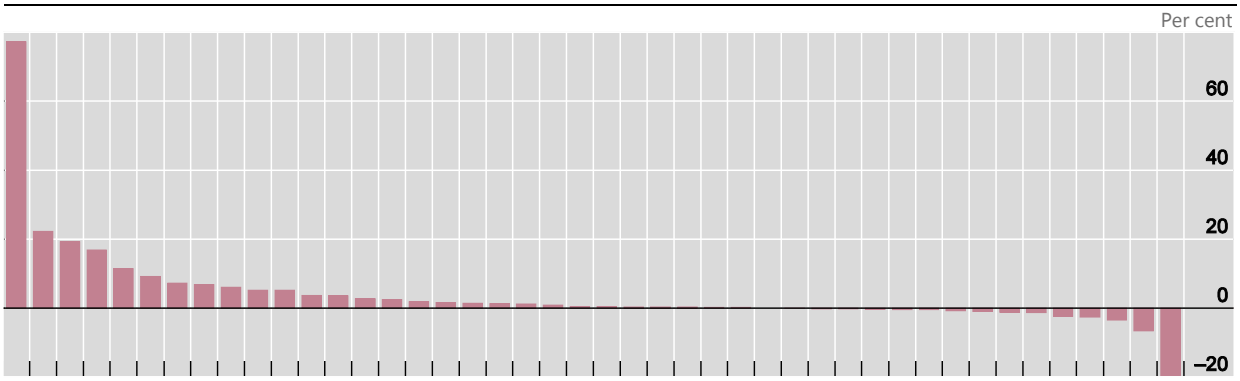
Compared to the current market risk framework, the proposed market risk framework would result in a weighted average increase of 74% in aggregate market risk capital charges (based on the sample of 44 banks. See Graph 1b). When measured as a simple average,[4] this increase in the total market risk capital requirement is 41%. For the median bank in the same sample, the capital increase is 18% (see Table 2).

- When measured as a simple average, the capital requirement under the proposed internally-modelled approaches is 54% higher than under current internally-modelled approaches. For the median bank, the capital requirement under the proposed internally-modelled approaches is 13% higher.
- Compared to the current standardised approach for market risk, the capital requirement under the proposed standardised approach is 128% higher. For the median bank, the capital requirement under the proposed standardised approach is 51% higher.

It should be noted that the results presented in this report are based on parameter values set at the time the QIS was undertaken. It does not reflect any subsequent revisions to either the internal model-based approach or standardised approach.

Change in total market risk capital charges as a percentage of total Basel III minimum capital requirement as of reporting date

Graph 1a



Note: Sample (x axis) = 44 banks; weighted mean = 4.7%.
With first bank from the left of the graph excluded: sample (x axis) = 43 banks; weighted mean = 2.3%.

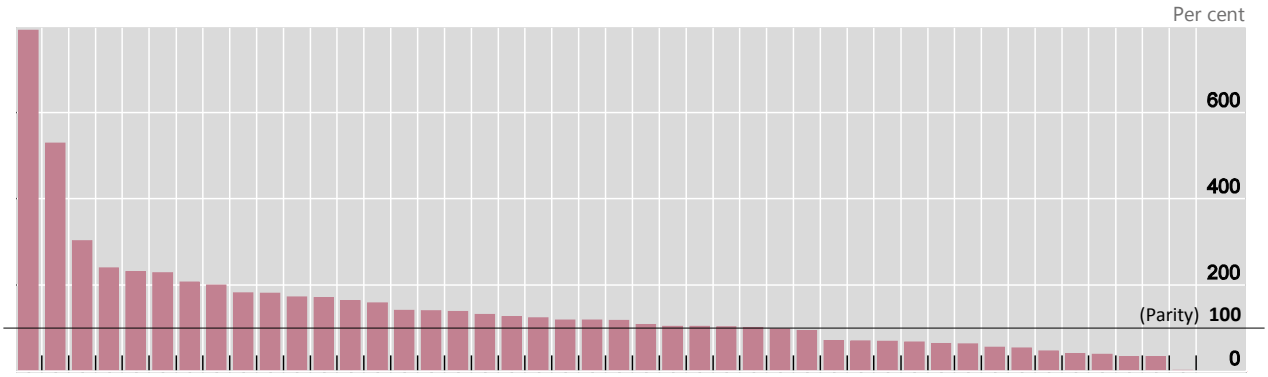
Source: Basel Committee on Banking Supervision

[4] In comparison to the weighted average, the simple average is an indicator that places less emphasis on banks with the largest percentage change in market risk weighted assets.

Total proposed market risk capital charge as a proportion of current market risk capital charge

Distribution by bank

Graph 1b



Note: Sample (x axis) = 44 banks; weighted mean = 174%.

With first bank from the left of the graph excluded: sample (x axis) = 43 banks; weighted mean = 139%.

One third of banks in the sample reported total proposed market risk capital charges that were lower than under current charges

Source: Basel Committee on Banking Supervision

Global level change in market risk charges in the trading book by components (breakdown by risk measure)

In per cent

Table 2

	Internally-modelled				Standardised	Grand Total
	ES	DRC	NMRF	Total	Delta, Vega, Curvature, and Default (Total)	
Simple Mean	–39	92	83	54	128	41
Median	–43	64	39	13	51	18
25th Percentile	–62	7	-19	–32	–62	–36
75th Percentile	–18	192	72	76	195	70

Note: A small number of banks were excluded from the simple mean results for ES, IDR, NMRF, Total (internally-modelled), Standardised and Grand Total for having an absolute percentage change of 1000% or higher. The simple (ie unweighted) mean figures for each of these columns were calculated separately.

Multiplier for ES in this analysis is assumed to be 1.

Source: Basel Committee on Banking Supervision

2.2 Comparison of standardised to internally-modelled approaches

Based on a sample of only 9 banks that provided complete data on both the revised standardised and internal model approaches, capital requirements under the standardised approach are 2 to 3 times

higher than the internally modelled approaches. This applies when a single correlation structure is adopted for all risk classes in the proposed standardised approach, instead of the "asymmetric correlation" structure described in the December 2014 consultative document *Fundamental review of the trading book: Outstanding issues*.[5] Further analysis is being performed in the next trading book QIS (based on end-June 2015 data) to assess any need for further recalibration of the parameters.

The comparison between the standardised and internal model approaches was performed on the basis of a simple risk class-by-risk class comparison (see Table 4). No adjustments were made to account for partially-recognised portfolio diversification effects across risk classes in the capital calculation formula for the ES model. A multiplier of 1 was assumed for the ES capital calculation. In addition, the capital charges for NMRFs and default risk are not included in this comparative analysis.

2.3 P&L attribution measure

Based on a sample of 16 banks, 88% (14 banks) pass the P&L attribution measure at the bank level. At the more granular trading desk level, the pass rates are lower. For example, in the first time grouping used in the analysis ("month 1"), 41% of trading desks pass the test whereby the mean of the difference between the theoretical and hypothetical P&L (unexplained P&L) divided by the standard deviation of the hypothetical P&L (called "MS P&L test value") is between -10% and 10% thresholds. Changes in the pass rates for different thresholds under the MS P&L test can be seen in detail in Table 6.

3. Sample of participating banks

A number of participating banks were excluded from individual sections of this analysis report, owing to incomplete data and/or errors in calculations. Compared to the trading book QIS in H2 2014 (based on end-June 2014 data), there was a marked improvement in data quality for the proposed standardised approach in this QIS.

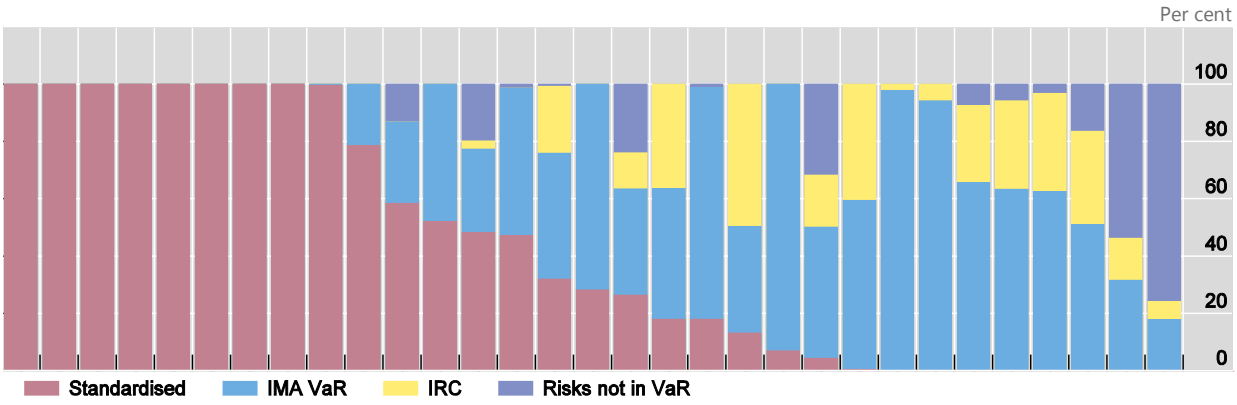
- In general, banks that did not provide complete submissions for the worksheet on the proposed standardised approach, which is to be calculated on all risks that are within scope of the proposed market risk framework, were excluded from most of the analysis in this report.
- 31 out of 78 banks were able to provide good quality data (eg performed accurate calculations for bucket and risk class level capital charges under the proposed standardised approach). As indicated in Graphs 2a and 2b, the 31 banks represent a diverse mix of "partial" and "full internal model-banks" as well as "standardised-only banks".
- For the purpose of the analysis in Table 4, a maximum of 23 banks out of the 31 banks satisfied the condition of having either "partial" or "full" internal model approval for market risk. The low sample sizes reflected in the "Total (non-default) risk" row within the table is the result of strict criteria for inclusion. Specifically, banks must have reconcilable figures with re-calculations performed by the Basel Committee for delta risk capital charges across all the risk classes (interest rate, credit spread, equity, commodity and FX risk).

[5] Based on the asymmetric correlation structure, this ratio increases to a factor of 8 to 9 times.

Breakdown of current market risk capital framework by risk measure
Standardised, IMA VaR, Incremental Risk Charge (IRC) and Risks not in VaR

Distribution by bank

Graph 2a



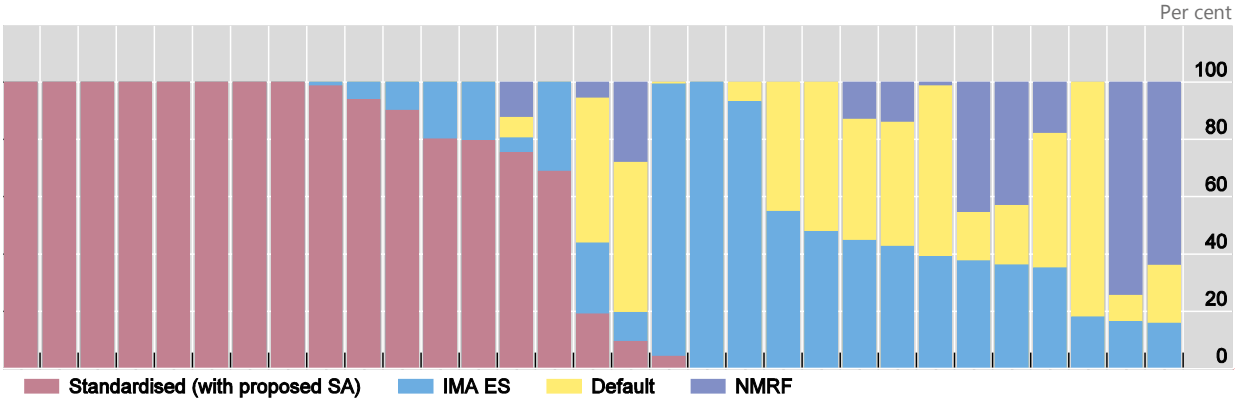
Note: Sample contains 31 banks

Source: Basel Committee on Banking Supervision

Breakdown of proposed market risk capital framework by risk measure:
Standardised, IMA ES, Default risk model and NMRF

Distribution by bank

Graph 2b



Note: Sample contains 31 banks

Source: Basel Committee on Banking Supervision

4. Analysis of the proposed standardised and internally-modelled approaches

This section provides more detailed analysis on the standardised approach (SA) and internally-modelled approaches (IMA) for market risk under the proposed market risk framework. The capital charges between IMA and SA (current and proposed) are compared based on data only on the share of a bank's trading book portfolio having received internal model approval ("IMA portfolio"). The capital charges between current and revised SA in this section are compared based on data on the entire share of a bank's trading book portfolio.

4.1 Capital charges under the revised and current internally-modelled approaches

Tables 3a and 3b provide the comparisons of market risk requirements between revised IMA and current IMA, asset class by asset class, based on the IMA portfolio.

Based on a sample of 36 banks, current internally-modelled capital charges increase by 45% on a simple average and 26% for the median bank when the same multiplier is assumed (Table 3a). For the interest rate risk class, capital appears to decrease by 20% for the median bank and increase by 18% for the average bank. Market risk capital for other asset classes, such as credit spread risk, equity, commodity and FX, increases from 15% to 48% for the median firm, and it almost doubles for the mean firm. Default risk capital almost doubles for the median bank, and it increases by 3 times for the average bank. When no multiplier is assumed for the revised IMA, non-default capital decreases to half of current non-default internal model capital for the median and average firm (Table 3b). In the calibration of the multiplier under the revised framework, one has to take into account that capital for default risk increases, the materiality of non-modellable risk and that the diversification constraints applied across asset classes are not factored into this analysis.

Change in capital charge from current IMA to revised IMA with same multiplier for both (comparing only non-zero data) based on IMA portfolio

In per cent — Table 3a

	Simple mean	Min	25th percentile	Median	75th percentile	Max	StDev	Sample size
Interest rate risk	18	-89	-39	-20	25	436	108	42
Credit spread risk	113	-97	-10	48	141	917	224	34
Equity risk	88	-87	-51	29	133	685	198	36
Commodity risk	78	-83	-6	22	61	887	188	33
FX risk	60	-80	-30	15	85	1095	197	41
Default risk	303	-41	69	93	330	1462	419	22
Total (non-default) risk	45	-74	-17	26	75	339	95	36

Source: Basel Committee on Banking Supervision

Change in capital charge from current IMA with a 3 multiplier to revised IMA without a multiplier (comparing only non-zero data) based on IMA portfolio

In per cent

Table 3b

	Simple mean	Min	25th percentile	Median	75th percentile	Max	StDev	Sample size
Interest rate risk	-61	-96	-80	-73	-58	79	36	42
Credit spread risk	-29	-99	-70	-51	-20	239	75	34
Equity risk	-37	-96	-84	-57	-22	162	66	36
Commodity risk	-41	-94	-69	-59	-46	229	63	33
FX risk	-47	-93	-77	-62	-38	298	66	41
Default risk	303	-41	69	93	330	1462	419	22
Total (non-default) risk	-52	-91	-72	-58	-42	46	32	36

Source: Basel Committee on Banking Supervision

4.2 Capital charges under the proposed and current standardised approaches

The tables below compare the capital requirements under the revised SA to the current SA. The banks used for the analysis in Table 3c are derived from the broader sample of banks that have a share of their trading book on the current IMA and could provide good quality data for the proposed SA.

The data in Table 3c shows that the revised SA calculates median capital requirements that are higher than the current SA for all risk classes. FX risk capital requirements have the highest median increase. But data here was also limited and the standard deviation of results is high. When applied to the entire trading book, the median increase in capital based on the proposed SA is 83% higher than the current SA.

Increase in capital charges under proposed SA relative to current SA

Group 1 and Group 2 banks, in per cent

Table 3c

	Commodity risk	FX risk	Interest rate + Credit spread + Equity + Default risk	Total
Median	30.4	88.2	37.2	83.0
Mean	90.2	115.1	111.6	103.0
Upper quartile	204.7	180.8	191.1	196.4
Lower quartile	-84.2	4.5	-9.7	14.4
StDev	229.5	177.6	173.4	122.0
Number of banks	4	7	9	12

Source: Basel Committee on Banking Supervision

4.3 Capital charges across different risk measurement approaches

Table 4 provides the comparisons of market risk capital requirements between the proposed SA and proposed IMA, risk class by risk class.

The proposed SA delta capital charges were re-calculated, and if these recalculated values differ from the banks' own delta capital calculations by more than 10%, the data is excluded from this analysis. When comparing the difference between total capital charges, data is excluded when banks' own calculations for delta capital charge in *any* asset class differs from BCBS calculations by more than 10%. Zero-data is also excluded from the analysis from both risk class and total capital charge analyses in order not to underestimate the impact of framework changes.

Based on a sample of nine banks, capital requirements under the proposed standardised approach are close to nine times higher than the corresponding requirements under the proposed internal models approach (ES model) (Table 4).[6] The capital charge increase for the interest rate and equity risk classes appear to be significantly larger than for credit spread, commodity, and FX risks. Default risk capital under the standardised approach is almost double the capital under revised IMA for banks on average as well as for the median bank.

Change in capital charge from revised IMA to proposed SA (comparing only non-zero data) based on IMA portfolio

In per cent — Table 4

	Simple mean	Min	25th percentile	Median	75th percentile	Max	StDev	Sample size
Interest rate risk	1579	-70	611	1024	1755	8322	1901	22
Credit spread risk	414	-73	133	335	685	1070	344	14
Equity risk	3735	134	499	837	2616	25269	6708	19
Commodity risk	1219	-67	330	579	1127	7668	1957	15
FX risk	937	-97	148	364	1164	4650	1298	16
Default risk	112	-93	-43	65	195	740	207	23
Total (non-default) risk	891	-55	419	872	1169	2172	645	9

Source: Basel Committee on Banking Supervision

[6] For the same sample, capital requirements under the proposed standardised approach are 2 to 3 times higher than the proposed internal models approach when a single correlation structure is adopted for all risk classes in the proposed standardised approach instead of the "asymmetric correlation" structure described in the December 2014 consultative document *Fundamental review of the trading book: Outstanding issues*.

5. Trading desk structure

In order for the Committee to better understand the desk structure defined by the banks, their 100 most material trading desks were analysed. The QIS required a mapping between internal desk names and the list entitled "stylised example of 'trading desk' structure" (regulatory trading desk types) provided in the first Consultative Document (CP1) of the Trading Book Group. As no unique mapping could be expected because of possible overlaps of banks' internal desk definitions and the regulatory desk structure, banks were asked in the QIS to proceed on best effort basis and perform the mapping in a way that regulatory desks were chosen which best described the internal desks based on the key elements of a trading desk as defined in Annex 4, Appendix A.[7] In order to allow assessing desks' materiality, banks were required to provide the current regulatory 99% stressed value-at-risk of each desk.

41 of 78 participating banks, ie around half of the banks, provided data on their internal desk structures (see Table5). 19 banks (46% of the sample) provided internal desk lists with fewer than 21 desks. From the remaining banks, 64% stated that they had more than 50 material trading desks. The average number of trading desks per bank is 33.

Number of trading desks — Table 5

	Number of banks	Per cent of banks
Between 1 and 20	19	46
Between 21 and 50	8	20
Between 51 and 99	12	29
Equal to 100	2	5
Total	41	100

Source: Basel Committee on Banking Supervision

Graph 3a below illustrates the distribution of regulatory trading desk types to which internal trading desks were mapped. This graph shows that there are three groups.

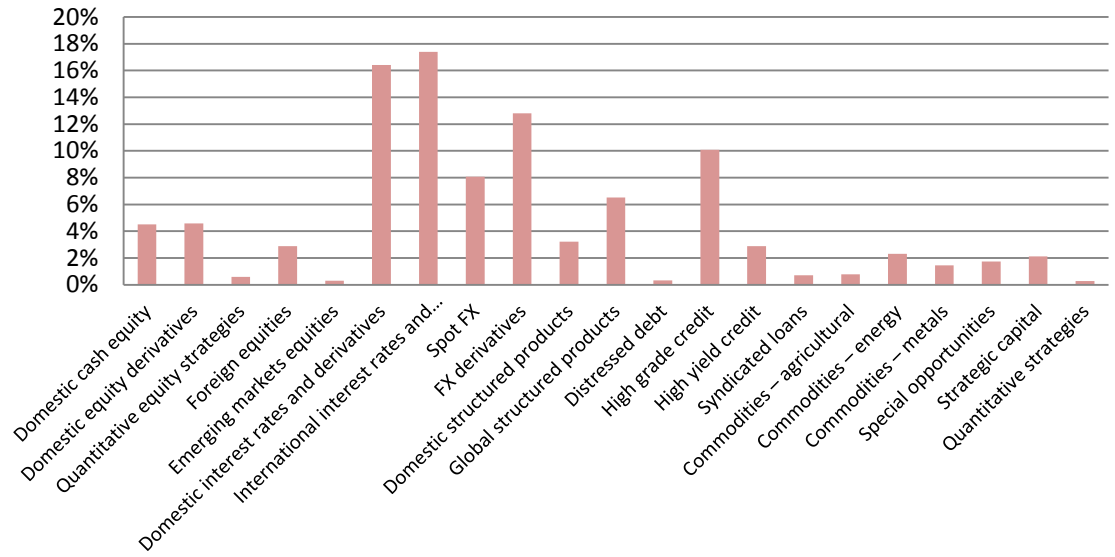
- The four trading desk types "International interest rates and derivatives", "Domestic interest rates and derivatives", "FX derivatives" and "High grade credit" are used most frequently.
- The second most frequently used group is composed of "Spot FX", "Global structured products", "Domestic equity derivatives", and "Domestic cash equity".
- The remaining group of 13 trading desk types are used less frequently.

[7] Basel Committee on Banking Supervision, *Instructions for Basel III monitoring,* December 2014, www.bis.org/bcbs/qis/.

Percentage of trading desk type

In per cent

Graph 3a



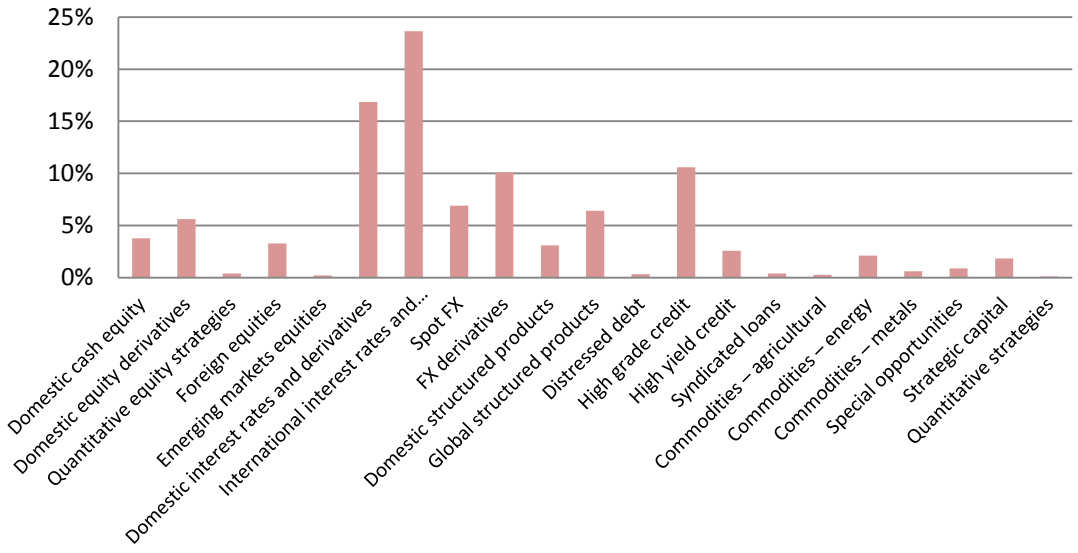
Source: Basel Committee on Banking Supervision

Graph 3b illustrates the distribution of the stress VaR to regulatory trading desk types to which the internal trading desks were mapped. The distribution corresponds to a large extent to those in graph 3a. This result shows that the distribution of regulatory trading desk types is consistent with their estimated materiality.

Percentage of stress VaR amount by trading desk type

In per cent

Graph 3b



Source: Basel Committee on Banking Supervision

6. P&L attribution test

P&L attribution is an important component of the revised internal models approach for assessing model performance. The objective of the two P&L attribution measures (see below, in the following also denoted as 'tests') is to compare the hypothetical P&L based on front office pricing systems with the theoretical P&L based on the risk model-generated risk measures. If the risk measure values differ significantly, the tests indicate potential weaknesses in the risk measurement models.

The P&L attribution requirements are based on two metrics:

- The mean of the difference between the theoretical and hypothetical P&L (unexplained P&L) divided by the standard deviation of the hypothetical P&L (called "MS P&L test value"); and
- The variance of the unexplained P&L divided by the variance of the hypothetical P&L (called "VV P&L test value").

In the QIS, banks were required to provide the daily hypothetical P&L data and theoretical P&L data at desk level.

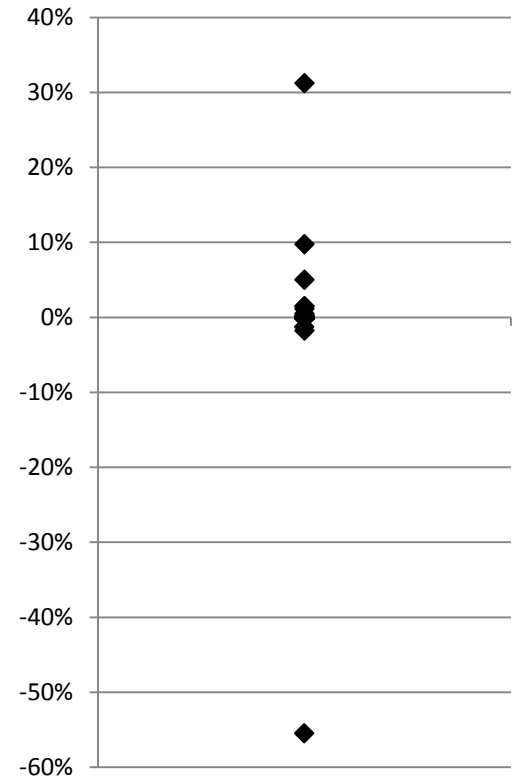
6.1 P&L attribution tests on single bank level

In the QIS, banks were required to provide P&L data for up to a maximum of 120 days. The data were stratified into six groups (month 1 - month 6). The values for the MS P&L test and the VV P&L test were computed for all trading desks (6 months x 2 test values x all trading desks).

Graph 4a shows the median of the MS P&L tests for each bank while Graph 4b shows the median of the VV P&L test values for each bank. 16 out of 78 participating banks provided the P&L attribution test data. The result of the MS test illustrates that 14 banks (88%) pass the MS P&L test with the -10% / 10% thresholds, while 12 banks (75%) fail to pass the VV P&L test for the 20% threshold.

Medians of MS P&L test values (over months and desks) at bank level

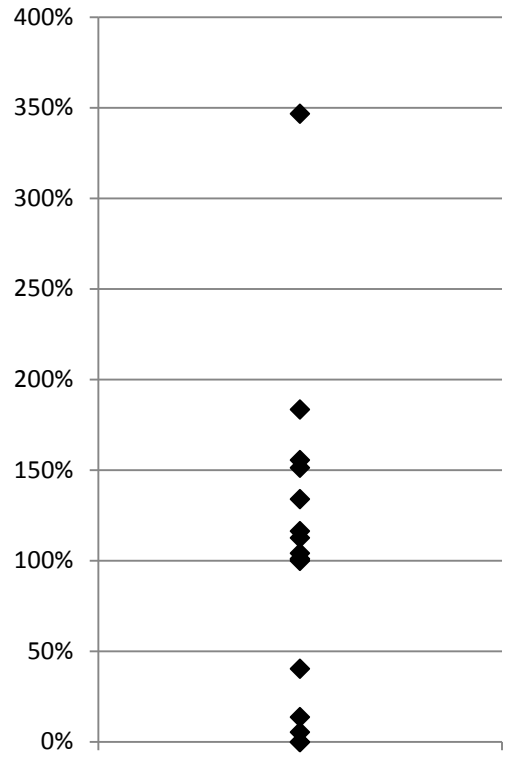
Graph 4a



Source: Basel Committee on Banking Supervision

Medians of VV P&L test values (over months and desks) at bank level

Graph 4b



Source: Basel Committee on Banking Supervision

On this highest aggregation level, banks perform well under the MS P&L attribution test. However, at desk level, the pass rates change materially (see Table 6). For month 1, for example, 59% of banks' desks fail to pass the MS P&L test with the -10% / 10% thresholds. Changes in the pass rates for different thresholds under the MS P&L test can be seen in detail in Table6. Table 6 also shows that the pass rates under the MS P&L test are almost the same for all six months.

Pass rates for banks' desks under the MS P&L test

Table 6

Month 1 : T - T+19 MS P&L test				
				% desks failing test
Threshold	-5%	to	5%	74%
Threshold	-10%	to	10%	59%
Threshold	-15%	to	15%	50%
Threshold	-20%	to	20%	45%
Threshold	-30%	to	30%	33%
Threshold	-40%	to	40%	22%
Threshold	-50%	to	50%	17%
Sample :	366 desks			

Month 2 : T+20 - T+39 MS P&L test				
				% desks failing test
Threshold	-5%	to	5%	76%
Threshold	-10%	to	10%	62%
Threshold	-15%	to	15%	52%
Threshold	-20%	to	20%	44%
Threshold	-30%	to	30%	31%
Threshold	-40%	to	40%	23%
Threshold	-50%	to	50%	18%
Sample :	369 desks			

Month 3 : T+40 - T+59 MS P&L test				
				% desks failing test
Threshold	-5%	to	5%	78%
Threshold	-10%	to	10%	66%
Threshold	-15%	to	15%	56%
Threshold	-20%	to	20%	46%
Threshold	-30%	to	30%	32%
Threshold	-40%	to	40%	25%
Threshold	-50%	to	50%	19%
Sample :	350 desks			

Month 4 : T+60 - T+79 MS P&L test				
				% desks failing test
Threshold	-5%	to	5%	71%
Threshold	-10%	to	10%	58%
Threshold	-15%	to	15%	48%
Threshold	-20%	to	20%	38%
Threshold	-30%	to	30%	24%
Threshold	-40%	to	40%	18%
Threshold	-50%	to	50%	15%
Sample :	328 desks			

Month 5 : T+80 - T+99 MS P&L test				
				% desks failing test
Threshold	-5%	to	5%	77%
Threshold	-10%	to	10%	61%
Threshold	-15%	to	15%	48%
Threshold	-20%	to	20%	39%
Threshold	-30%	to	30%	27%
Threshold	-40%	to	40%	20%
Threshold	-50%	to	50%	15%
Sample :	327 desks			

Month 6 : T+100 - T+119 MS P&L test				
				% desks failing test
Threshold	-5%	to	5%	74%
Threshold	-10%	to	10%	62%
Threshold	-15%	to	15%	51%
Threshold	-20%	to	20%	45%
Threshold	-30%	to	30%	27%
Threshold	-40%	to	40%	20%
Threshold	-50%	to	50%	15%
Sample :	302 desks			

Source: Basel Committee on Banking Supervision

The data shows that banks have even more difficulties passing the VV P&L test. For example, in month 1, 81% of banks' desks fail to pass the test with the 20% threshold, while raising the threshold has little impact on the pass rates (see Table 7). This table also shows that the rates for the VV P&L test are almost the same over the months.

Pass rates for banks' desks under the VV P&L test

Table 7

Month 1 : T – T+19 VV P&L test			
			% desks failing test
Threshold	<	5%	86%
Threshold	<	10%	86%
Threshold	<	15%	84%
Threshold	<	20%	81%
Threshold	<	30%	79%
Threshold	<	40%	76%
Threshold	<	50%	73%
Sample :	366 desks		

Month 4: T+60 – T+79 VV P&L test			
			% desks failing test
Threshold	<	5%	87%
Threshold	<	10%	84%
Threshold	<	15%	81%
Threshold	<	20%	79%
Threshold	<	30%	76%
Threshold	<	40%	74%
Threshold	<	50%	73%
Sample :	328 desks		

Month 2: T+20 – T+39 VV P&L test			
			% desks failing test
Threshold	<	5%	88%
Threshold	<	10%	85%
Threshold	<	15%	84%
Threshold	<	20%	83%
Threshold	<	30%	80%
Threshold	<	40%	77%
Threshold	<	50%	74%
Sample :	369 desks		

Month 5: T+80 – T+99 VV P&L test			
			% desks failing test
Threshold	<	5%	87%
Threshold	<	10%	85%
Threshold	<	15%	83%
Threshold	<	20%	82%
Threshold	<	30%	80%
Threshold	<	40%	76%
Threshold	<	50%	74%
Sample :	327 desks		

Month 3: T+40 – T+59 VV P&L test			
			% desks failing test
Threshold	<	5%	90%
Threshold	<	10%	89%
Threshold	<	15%	88%
Threshold	<	20%	86%
Threshold	<	30%	84%
Threshold	<	40%	82%
Threshold	<	50%	79%
Sample :	350 desks		

Month 6: T+100 – T+119 VV P&L test			
			% desks failing test
Threshold	<	5%	91%
Threshold	<	10%	89%
Threshold	<	15%	86%
Threshold	<	20%	82%
Threshold	<	30%	80%
Threshold	<	40%	77%
Threshold	<	50%	75%
Sample :	302 desks		

Source: Basel Committee on Banking Supervision

The results of Tables 6 and 7 show banks' performance of the MS P&L test were better than the VV P&L test. It is thought that one of the reasons for the difference between both tests may be the difference of cut off time for P&L calculation. In case the cut off time of front office pricing system is different from the cut off time of risk model-generated risk measures, the difference makes a greater impact on the VV P&L test than the MS P&L test.[8]

[8] For example, it assumes that the cut off times of front office pricing system and of risk model-generated risk measure are 6:00 pm and 9:00 pm, and market shock +10 is caused at 8:00 pm every day for day T – day T+3 as follows. In this case, the 5 days mean of the unexplained P&L is (10+0+0+0-10)/5, although the 5 days variance of the unexplained P&L is {(10)^2+(-10)^2}/4=50. This means the market shock has an impact on only the VV P&L test.

	(a) P&L of front model	(b) P&L of risk model	Unexplained P&L ((a) minus (b))
Day T	+10	0	+10
Day T+1	+10	+10	0
Day T+2	+10	+10	0
Day T+3	+10	+10	0
Day T+4	0	+10	-10

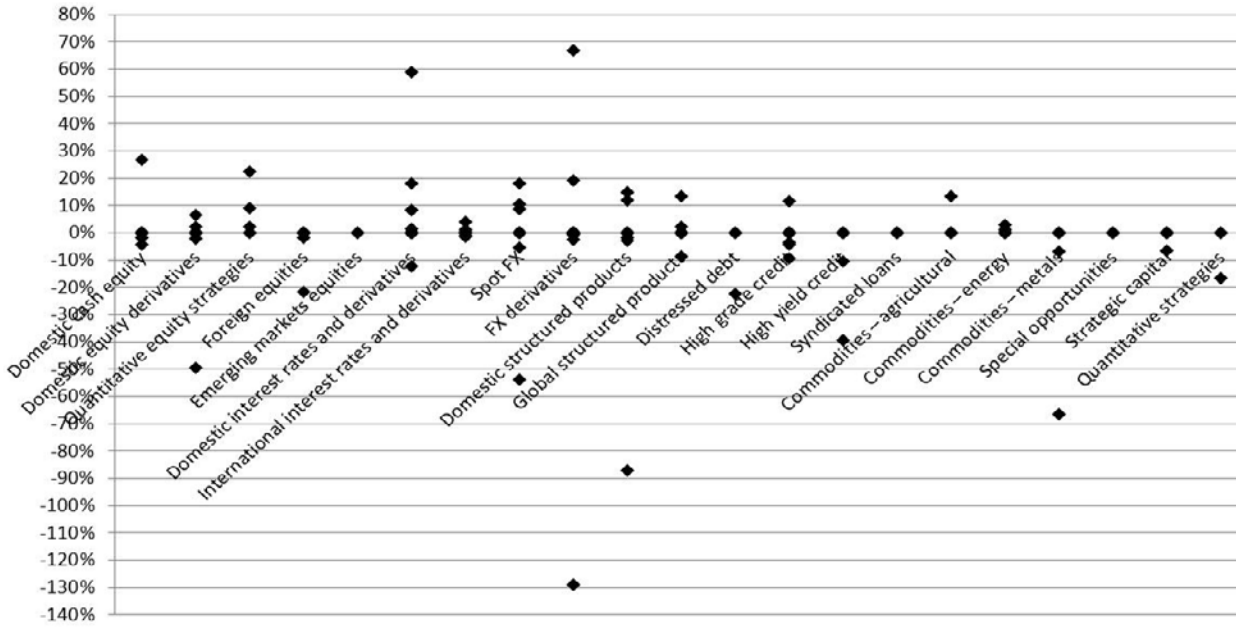
6.2 P&L attribution tests at each regulatory trading desk type

Graphs 5a and 5b break down the medians from graphs 4a and 4b by regulatory trading desk types. In graph 5a, 93% of the medians under the MS P&L test for the regulatory trading desk types are between -10% and 10%. The regulatory trading desk type which has largest number of medians beyond the interval -10% to 10% is "Quantitative strategies", followed in order by "Domestic structured products", "Distressed debt", "Quantitative equity strategies", "Commodities – agricultural", "High yield credit" and "Spot FX".

Distribution of medians of MS P&L test values

In per cent

Graph 5a



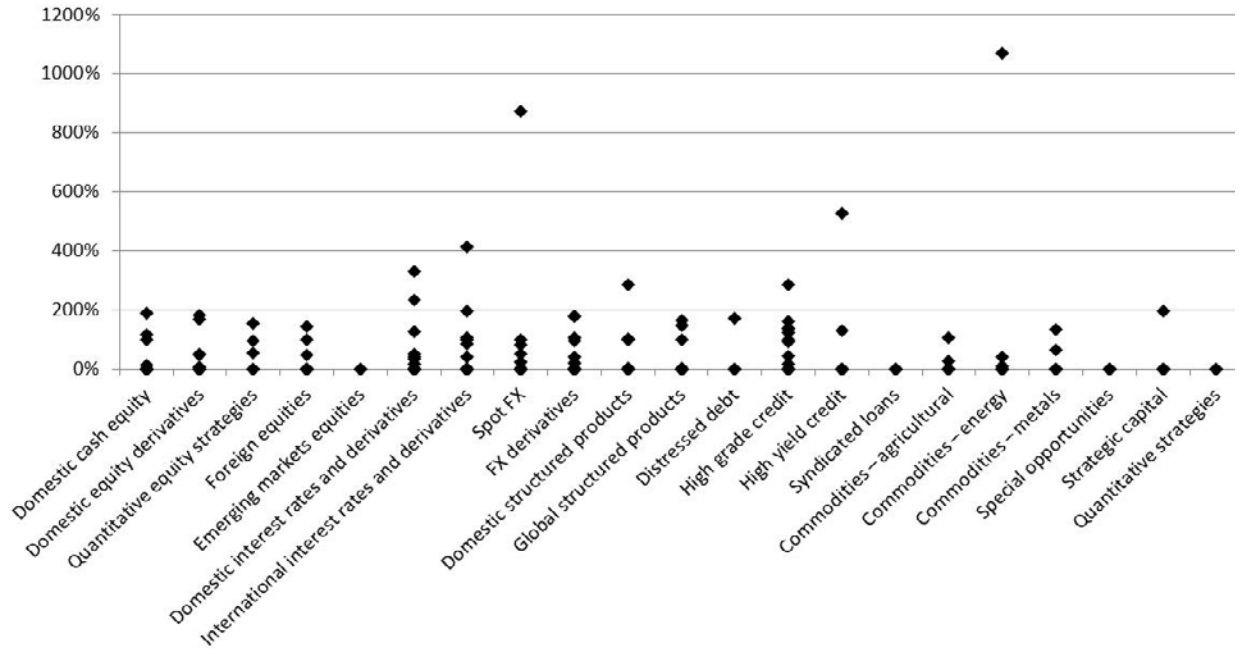
Source: Basel Committee on Banking Supervision

In Graph 5b, 19% of the median values under the VV P&L test for regulatory trading desk types are beyond the 20% threshold. The regulatory trading desk type which has largest number of medians beyond the 20% threshold is "International interest rates and derivatives", followed in order by "Domestic interest rates and derivatives", "FX derivatives" ,"Spot FX", "Commodities – metals", "Commodities – agricultural", "High grade credit", "Domestic structured products", "Quantitative equity strategies".

Distribution of medians of VV P&L test values

In per cent

Graph 5b



Source: Basel Committee on Banking Supervision

7. Non-modellable risk factors

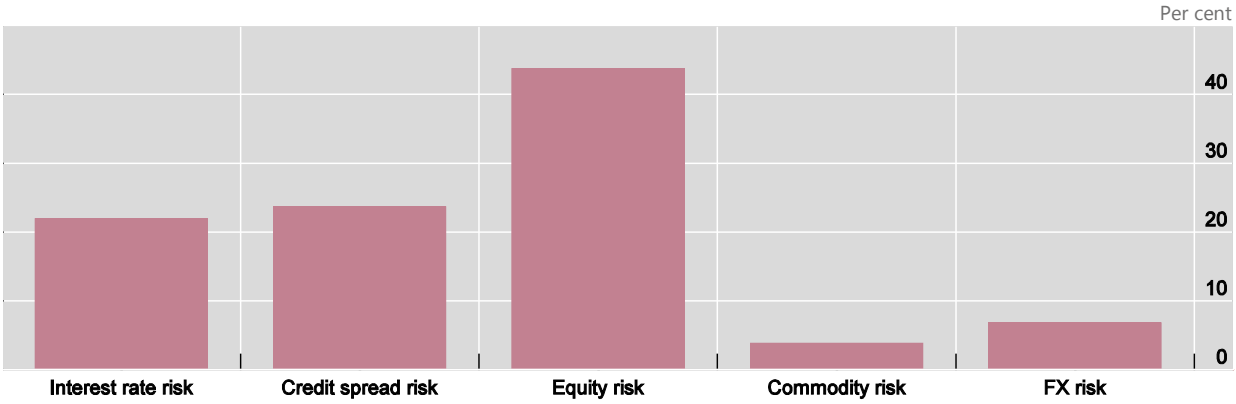
The proposed market risk framework requires banks to identify risk factors which are non-modellable (based on the availability of market prices). Non-modellable risk factors are not included in the internal model, instead they are capitalised separately. In the QIS, banks provided information on the type of non-modellable risk factors they have identified, and the size of the capital requirement that would be held against them. Based on that data, this section considers:

- Which risk classes have the greatest risk from non-modellable risk factors (see graph 6); and
- How large the capital requirement for non-modellable risk factors is relative to the total market risk capital requirement (ie ES + NMRF + IDR + SA) (see Graph 7).

20 banks indicated that they would hold capital for non-modellable risk factors. The data show (see following graph) that more than 40% of the capital requirement for NMRFs is due to equity risk factors. Interest rate risk and credit spread risk are the next most significant contributors to total NMRFs at approximately 20% each, and commodity and FX risk contribute the least with each being less than 10% of the total.

Proportion of total NMRF capital by asset class

Graph 6

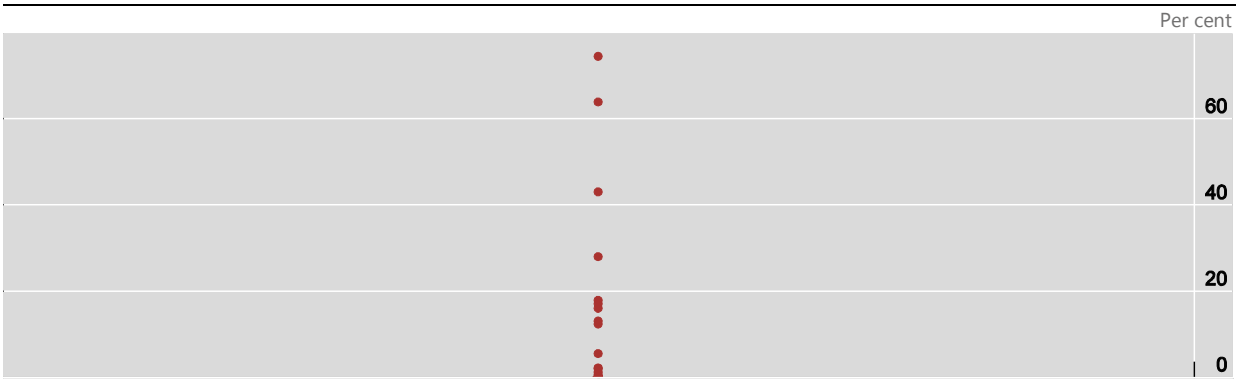


Source: Basel Committee on Banking Supervision

On average, NMRF capital requirements are approximately 7% of total market risk capital requirements (see following graph). But there is a large variation in results, with two banks reporting NMRF capital requirements of over 60% of total capital requirements and many (27 out of a sample of 43) reporting zero NMRF capital.

NMRF capital requirement as percentage of total market capital requirement

Graph 7



Source: Basel Committee on Banking Supervision

8. Explained P&L by risk factors from the proposed standardised approach

In the QIS, banks with internal model approval were requested to provide theoretical P&L data based on the prescribed risk factors under the proposed standardised approach. Only 8 banks out of 78 participating banks provided the requested data. Due to the small sample size, analysis was limited to examining differences in unexplained P&L arising from risk factors within banks' internal models (IMA risk factors) and risk factors specified under the proposed standardised approach (SA risk factors). Table 8a shows that daily unexplained P&L based on SA risk factors correspond largely with the unexplained P&L based on IMA risk factors. Table 8b, which depicts the number of desks within different ranges for

the unexplained P&Ls, shows a similar result. These findings suggest that the SA risk factor and the IMA risk factor setups are similar and that the SA can serve as a credible fallback to the internal models.

Table 8a

ABS(IMA P&L - hypothetical P&L) / ABS(hypothetical P&L) % of divergence from hypothetical P&L			number of dates
	=	0	2,069
0%	<	100%	4,003
100%	<	200%	3,013
200%	<	300%	967
300%	<	400%	498
400%	<	500%	304
500%	<	1000%	650
1000%	>		882

ABS(SA P&L - hypothetical P&L) / ABS(hypothetical P&L) % of divergence from hypothetical P&L			number of dates
	=	0	1,833
0%	<	100%	4,217
100%	<	200%	3,031
200%	<	300%	982
300%	<	400%	494
400%	<	500%	306
500%	<	1000%	653
1000%	>		875

Source: Basel Committee on Banking Supervision

Table 8b

ABS(IMA P&L - hypothetical P&L) / ABS(hypothetical P&L) Average % of divergence from hypothetical P&L by desk			number of desks
	=	0	12
0%	<	100%	6
100%	<	200%	16
200%	<	300%	14
300%	<	400%	20
400%	<	500%	8
500%	<	1000%	19
1000%	>		17

ABS(SA P&L - hypothetical P&L) / ABS(hypothetical P&L) Average % of divergence from hypothetical P&L by desk			number of desks
	=	0	11
0%	<	100%	7
100%	<	200%	17
200%	<	300%	13
300%	<	400%	22
400%	<	500%	9
500%	<	1000%	17
1000%	>		17

Source: Basel Committee on Banking Supervision

9. Analysis of closed-form questions on the revised boundary

The proposed market risk framework provides a list of instruments that are presumed to be in the trading book. Banks will have to justify to their national supervisory agency where they intend to deviate from classifying all such instruments as trading book. In the QIS, banks provided information on the mark-to-market size of positions that are recorded in the trading book and banking book for this presumed list of instruments. Based on that data this section considers:

- The relative size of deviations for the list of presumed trading book instruments.
- The number of firms reporting deviations.
- Reasons reported by banks for these deviations.

24 of the 78 banks that reported the FRTB section of the QIS also reported valid data. Of those banks, five reported only trading book exposures (indicating that all instruments that are presumed to be held in the trading book are indeed in their trading book), and five reported only banking book exposures (ie all instruments that are presumed to be held in the trading book are actually in their banking book). However, at least some of the banks that reported only banking book positions have simply omitted to report the values of these instruments that are already in their trading book. Of the banks that did not report on deviations from the presumptive list, some provided qualitative information

essentially stating that either they anticipate that their deviations will be easily approved by their national supervisors, or they believe they are already fully compliant with the presumptive list.

Of the 14 firms that reported both trading book and banking book positions for the presumptive list of instruments, Tables 9a to 9c give details on the size of positions in the banking book (relative to the size of total positions in both trading book and banking book). Banks that report banking book positions exclusively are excluded from Tables 9a to 9c and identified separately in Table 9d.

Positive mark-to-market positions: banking book positions, as percentage of trading book and banking book positions

Table 9a

	Paragraph 15(a): Accounting trading asset or liability	Paragraph 15(b): Resulting from market-making activities	Paragraph 15(c): Equity investment in a fund	Paragraph 15(d): Listed equity	Paragraph 15(e): Options
Median	7.9%	0.5%	71.4%	0.6%	0.3%
Average	21.6%	10.2%	56.3%	21.4%	16.3%
Upper quartile	19.8%	1.1%	96.6%	25.4%	6.6%
Lower quartile	0.3%	0.0%	4.8%	0.0%	0.0%
StDev	33.2%	27.6%	44.6%	37.1%	30.0%
Number of banks	14	8	11	11	9

Source: Basel Committee on Banking Supervision

Table 9a shows that the median proportion of positive mark-to-market positions in the banking book for the presumptive list is around 0-1% for three types of instruments as described in paragraph 15 of the draft standard provided in the QIS instructions. These include: instruments resulting from market-making activities (Paragraph 15 (b)); listed equities (Paragraph 15 (d)); and options (Paragraph 15(e)). For instruments that are accounting trading assets or liabilities (Paragraph 15(a)), the proportion assigned to the banking book is less than 20% at the upper quartile. Conversely, for Equity investments in a fund (Paragraph 15(c)), the majority of banks classify a large proportion of their holdings as banking book. Looking at the underlying data, the classification to banking book or trading book is binary. Banks either classify most of Paragraph 15(c) instruments to their banking book, or they classify most to their trading book. This can be seen by the lower quartile value of just 4.8%.

Negative mark-to-market positions: Banking book positions, as percentage of trading book and banking book positions

Table 9b

	Paragraph 15(a): Accounting trading asset or liability	Paragraph 15(b): Resulting from market-making activities	Paragraph 15(c): Equity investment in a fund	Paragraph 15(d): Listed equity	Paragraph 15(e): Options
Median	11.5%	0.0%	0.0%	0.0%	0.3%
Average	20.3%	12.8%	15.5%	9.5%	22.3%
Upper quartile	28.3%	0.8%	0.0%	0.1%	6.1%
Lower quartile	0.3%	0.0%	0.0%	0.0%	0.1%
StDev	28.3%	35.3%	38.1%	30.0%	42.1%
Number of banks	14	8	6	10	9

Source: Basel Committee on Banking Supervision

The sample size in table 9b is slightly smaller when looking at negative positions than positive positions. The majority of banks report relatively small deviations from the presumed list, with the exception being Paragraph 15(a) instruments, where the median mark-to-market deviation is 11.5%. It is worth noting here that both the average deviation and upper quartile value are less than 30%. For the other types of instruments, the averages and standard deviations presented are large relative to the medians and ranges between upper and lower quartiles; these metrics are all skewed by one or two banks who classify a large proportion of the presumptive list to their banking book.

Net mark-to-market positions: Banking book positions, as percentage of net trading book and banking book positions

Table 9c

	Paragraph 15(a): Accounting trading asset or liability	Paragraph 15(b): Resulting from market-making activities	Paragraph 15(c): Equity investment in a fund	Paragraph 15(d): Listed equity	Paragraph 15(e): Option
Median	1.3%	0.0%	73.0%	0.2%	0.3%
Average	-13.8%	-172.4%	57.1%	22.7%	19.8%
Upper quartile	19.6%	1.6%	100%	40.0%	2.7%
Lower quartile	0.0%	0.0%	5.1%	0.0%	-0.2%
StDev	134.3%	522.5%	45.1%	43.2%	47.7%
Number of banks	14	8	11	11	9

Source: Basel Committee on Banking Supervision

The findings summarised in Table 9c are broadly similar to Table 9a, illustrating that the median proportion of net mark-to-market positions in the banking book for the presumed list is close to 0% for most of the instruments described under Paragraphs 15(a), 15(b), 15(d) and 15(e). Banks also reported having mostly positive mark-to-market positions for Paragraph 15(c) instruments.

Banking book positions presumed to be in the trading book — Table 9d

	Paragraph 15(a): Accounting trading asset or liability	Paragraph 15(b): Resulting from market-making activities	Paragraph 15(c): Equity investment in a fund	Paragraph 15(d): Listed equity	Paragraph 15(e): Option
Number of banks with only banking book	2	0	1	5	2
Total number of banks with banking book	12	5	10	15	10

Source: Basel Committee on Banking Supervision.

A conclusion from Table 9d is that deviations can occur across all of the instruments on the presumed trading book list. However, deviations are relatively less common for 15(b), *instruments relating to market-making*.

Reporting banks were also asked to explain the reasons for their deviations in a separate qualitative document. These are as follows:

- Paragraph 15(a) - *Instruments that are accounting trading assets or liabilities:* One reason stated by reporting banks is that certain derivative instruments used for hedging (eg macro-hedging via total return swaps) of banking book positions are assigned to the banking book; where these derivatives aren't eligible for hedge accounting, IFRS prescribes that they are revalued daily as held-for-trading positions, and therefore fall in the scope of 15(a). An alternative reason provided for classifying 15(a) instruments into the banking book is that external auditors purportedly might require that positions housed in the bank's internal restructuring unit (for the winding down of existing portfolios) be assigned to the banking book.
- Paragraph 15(b) - *Instruments relating to market-making*: Only one explanation was provided, which is that this category could be interpreted as including all positions in an instrument for which a bank is a market-maker, including where the firm is holding some of these instruments long-term in the banking book.
- Paragraph 15(c) - *Equity investment in a fund*: At least one reporting bank interpreted that equity investments in funds where the bank cannot look-through to the underlying holdings of the fund should be included in this section (such equity investments were already instructed to be assigned to the banking book at the time of this QIS exercise).
- Paragraph 15(d) - *Listed equity*: At least one bank records strategic participations in listed equities held on a long term basis as banking book positions.
- Paragraph 15(e) - O*ptions*: The same macro-hedging explanation applies for banking book positions of 15(e) as for 15(a); another explanation was that 15(e) may include warrants (classified as held-for-trading under IFRS), which are illiquid and not always tradable and therefore are classified as banking book.

Annex

QIS closed-form questions

This Annex summarises responses provided to a series of closed-form qualitative questions extended to the banks in this trading book QIS (as of 31 December 2014). The number of responses per question ranged from 9 to 52 banks (34 on average).

Questions 1 through Question 24 relate to internal risk transfers between the banking book and trading book. Questions 25 through Question 29 pertain to the treatment of non-modellable risk factors (NMRF) in the proposed internal models approach. Finally, Question 30 through to Question 32 relate to the proposed standardised approach.

1. Internal risk transfers between the banking book and trading book

Question 1

Question 1 asked: *"Please choose the answer that best describes your predominant (ie widely used) strategy for risk transfers of Interest Rate Risk in the banking book."*

IRT of interest rate risk: predominant strategy — Table A1

	Number of respondents	Per cent of respondents
From banking book to trading book within the same legal entity	17	32.7%
From the banking book of one, or several, legal entities to the trading book of the group's investment bank	9	17.3%
Directly from the banking book of each legal entity to the market	22	40.4%
Other	5	9.6%
Total	52	100%

Finding from responses to Question 1: Around 40% of the respondents do not transfer interest rate risk from the banking book to the trading book but they hedge their positions directly with the market. Half of the respondents (33% and 17%) use internal risk transfers from the banking book to the trading book (IRT) within the same legal entity or within the entity "banking group". Note that almost 10% of the respondents answer "Other".

Question 2

Question 2 asked: *"If your answer to question 1 differs from "A3" (ie directly from the banking book of each legal entity to the market), please provide an estimate of the relative portion of "non-exact match" hedges (eg macro hedges) to total hedges which are transferred from the banking to the trading book for internal*

risk management purposes (ie "non-exact match" hedges over total hedges, where total hedges is defined as the sum of "exact match" hedges and "non-exact match" hedges)."

IRT of interest rate risk: exact vs. non-exact match hedges (banking book to the trading book) — Table A2

	Number of respondents	Per cent of respondents
0% to 20%	6	23.1%
21% to 40%	5	19.2%
41% to 60%	3	11.5%
61% to 80%	2	7.7%
81% to 100%	10	38.5%
Total	26	100%

Finding from responses to Question 2: The proportion of "non-exact match hedges" over total hedges (sum of exact match and non-exact match hedges) from the banking book to the trading book for IRT purposes is above 60% for almost half of the respondents. Note that this proportion is lower than 20% for almost a quarter of the respondents.

Question 3

Question 3 asked: *"If your answer to question 1 differs from "A3" (ie directly from the banking book of each legal entity to the market), please provide an estimate of the relative portion of "non-exact match" hedges (eg macro hedges) to total hedges which are transferred from the trading book to the market for internal risk management purposes (ie "non-exact match" hedges over total hedges, where total hedges are defined as the sum of "exact match" hedges and "non-exact match" hedges)."*

IRT on interest rate risk: exact vs. non-exact match hedges (trading book to the market) — Table A3

	Number of respondents	Per cent of respondents
0% to 20%	6	22.2%
21% to 40%	5	18.5%
41% to 60%	0	0.0%
61% to 80%	1	3.7%
81% to 100%	15	55.6%
Total	27	100%

Finding from responses to Question 3: The proportion of "non-exact match hedges" over total hedges from the trading book to the market for IRT purposes is very high for more than half of the respondents. Note that this proportion is lower than 20% for almost a quarter of the respondents.

Question 4

Question 4 asked: *"Please describe your predominant (ie widely used) strategy for risk transfers of credit risk in the banking book."*

IRT of credit risk: predominant strategy — Table A4

	Number of respondents	Per cent of respondents
From banking book to trading book within the same legal entity	5	11.1%
From the banking book of one, or several, legal entities to the trading book of the group's investment bank	1	2.2%
Directly from the banking book of each legal entity to the market	34	75.6%
Other	5	11.1%
Total	45	100%

Finding from responses to Question 4: Three quarters of the respondents do not transfer credit risk from the banking book to the trading book but hedge their positions directly to the market. Only a few respondents reported the execution of such transfers via IRT from the banking book to the trading book. More than 10% of the respondents indicated the use of "other" strategies.

Question 5

Question 5 asked: *"If your answer to question 4 differs from "A3" (ie directly from the banking book of each legal entity to the market), please provide an estimate of the relative portion of "non-exact match" hedges (eg macro hedges) to total hedges which are transferred from the banking book to the trading book for internal risk management purposes (ie "non-exact match" hedges over total hedges, where total hedges are defined as the sum of "exact match" hedges and "non-exact match" hedges.)"*

IRT of credit risk: exact vs. non-exact match hedges (banking book to the trading book) — Table A5

	Number of respondents	Per cent of respondents
0% to 20%	8	88.9%
21% to 40%	0	0.0%
41% to 60%	0	0.0%
61% to 80%	1	11.1%
81% to 100%	0	0.0%
Total	9	100%

Finding from responses to Question 5: The proportion of "non-exact match hedges" to total hedges from the banking book to the trading book for IRT purposes is between 0 to 20% for 8 out of a total of 9 respondents.

Question 6

Question 6 asked: *"If your answer to question 4 differs from "A3" (ie directly from the banking book of each legal entity to the market), please provide an estimate of the relative portion of "non-exact match" hedges (eg macro hedges) to total hedges which are transferred from the trading book to the market for internal risk management purposes (ie "non-exact match" hedges over total hedges, where total hedges are defined as the sum of "exact match" hedges and "non-exact match" hedges.)"*

IRT on credit risk: exact vs. non-exact match hedges (trading book to the market) — Table A6

	Number of respondents	Per cent of respondents
0% to 20%	5	50.0%
21% to 40%	1	10.0%
41% to 60%	1	10.0%
61% to 80%	1	10.0%
81% to 100%	2	20.0%
Total	10	100%

Finding from responses to Question 6: The proportion of "non-exact match hedges" to total hedges from the trading book to the market for IRT purposes is low for half of the respondents. Two banks reported a high proportion of "non-exact match hedges" to total hedges.

Question 7

Question 7 asked: *"Please describe your predominant (ie widely used) strategy for risk transfers of equity risk in the banking book."*

IRT of equity risk: predominant strategy — Table A7

	Number of respondents	Per cent of respondents
From banking book to trading book within the same legal entity	10	24.4%
From the banking book of one, or several, legal entities to the trading book of the group's investment bank	2	4.9%
Directly from the banking book of each legal entity to the market	24	58.5%
Other	5	12.2%
Total	41	100%

Finding from responses to Question 7: More than half of the respondents do not transfer equity risk from the banking book to the trading book but hedge their positions directly with the market. Such IRTs are the predominant strategy for slightly over a quarter of the respondents. More than 10% of the respondents indicated the use of "other" strategies.

Question 8

Question 8 asked: *"If your answer to question 7 differs from "A3" (ie directly from each legal entity banking book to the market), please provide an estimate of the relative portion of "non-exact match" hedges (eg macro hedges) to total hedges which are transferred from the banking book to the trading book for internal risk management purposes (ie "non-exact match" hedges over total hedges, where total hedges are defined as the sum of "exact match" hedges and "non-exact match" hedges.)"*

IRT of equity risk: exact vs. non-exact match hedges (banking book to the trading book) — Table A8

	Number of respondents	Per cent of respondents
0% to 20%	12	85.7%
21% to 40%	0	0.0%
41% to 60%	1	7.1%
61% to 80%	0	0.0%
81% to 100%	1	7.1%
Total	14	100%

Finding from responses to Question 8: The proportion of "non-exact match hedges" to total hedges from the banking book to the trading book for IRT purposes is between 0 to 20% for 12 out of a total of 14 respondents.

Question 9

Question 9 asked: *"If your answer to question 7 differs from "A3" (ie directly from each legal entity banking book to the market), please provide an estimate of the relative portion of "non-exact match" hedges (eg macro hedges) to total hedges which are transferred from the trading book to the market for internal risk management purposes (ie "non-exact match" hedges over total hedges, where total hedges are defined as the sum of "exact match" hedges and "non-exact match" hedges.)"*

IRT of equity risk: exact vs. non-exact match hedges (trading book to the market) Table A9

	Number of respondents	Per cent of respondents
0% to 20%	8	53.3%
21% to 40%	0	0.0%
41% to 60%	1	6.7%
61% to 80%	1	6.7%
81% to 100%	5	33.3%
Total	15	100%

Finding from responses to Question 9: The proportion of "non-exact match hedges" to total hedges from the trading book to the market for IRT purposes is low for half of the respondents and very high for a third of respondents.

Question 10, Question 11 and Question 12

Question 10 asked: *"Does the regulatory treatment in your jurisdiction for risk transfers of interest rate risk in the banking book differ from the strategy used for internal risk management purposes? If the answer to this question is Yes ("A1"), please provide further details of this difference in a separate qualitative Word document to be submitted to national authorities together with the QIS template."*

Question 11 asked: *"Does the regulatory treatment in your jurisdiction for risk transfers of credit risk in the banking book differ from the strategy used for internal risk management purposes? If the answer to this question is Yes ("A1"), please provide further details of this difference in a separate qualitative Word document to be submitted to national authorities together with the QIS template."*

Question 12 asked: *"Does the regulatory treatment in your jurisdiction for risk transfers of equity risk in the banking book differ from the strategy used for internal risk management purposes? If the answer to this question is Yes ("A1"), please provide further details of this difference in a separate qualitative Word document to be submitted to national authorities together with the QIS template."*

Do regulatory treatments of IRTs differ from strategies used for internal risk management purposes? Table A10

	Number of respondents	Number of "yes" responses
Interest rate risk	50	3
Credit risk	43	3
Equity risk	41	2

Finding from responses to Question 10, 11 and 12: A small proportion of respondents reported a "yes" to the question of whether the regulatory treatment of IRTs imposed by their supervisory authority

differed from their own strategies used internal risk management purposes. One such respondent provided a supplementary explanation to explain this discrepancy: "the bank manages economic risk, first and foremost, and regardless of trading book or banking book (regulatory) classification".

Question 13

Question 13 asked: *"Please rank the following three risk asset classes (credit, equity, interest rate) by frequency of internal risk transfers (IRT) between the banking book and trading book. Please indicate this ranking by descending order of frequency. "*

Ranking internal risk transfers by frequency — Table A11

	Number of respondents	Per cent of respondents
Interest rate; equity; credit	14	32.6%
Interest rate; credit; equity	25	58.1%
Equity; interest rate; credit	3	7.0%
Equity; credit; interest rate	0	0.0%
Credit; interest rate; equity	0	0.0%
Credit; equity; interest rate	1	2.3%
Total	43	100%

Finding from responses to Question 13: For 90% of respondents, IRTs between the banking book and the trading book are mainly associated with interest rate risk.

Question 14

Question 14 asked: *"Which desks in the trading book of your bank are involved with IRTs of interest rate risk between the banking book and trading book?"*

IRT of interest rate risk: types of trading desks used — Table A12

	Number of respondents	Per cent of respondents
Interest rate desk	10	21.7%
Swap desk	14	30.4%
Structured product desk	0	0.0%
A combination of any of the above answers	20	43.5%
Other	2	4.4%
Total	46	100%

Finding from responses to Question 14: For half of the respondents, interest rate or swap desks are involved with IRTs of interest rate risk between the banking book and the trading book. Note that two banks report "Other" and for more than 40% this activity is performed by a combination of trading desks, possibly including its 'structured product' desk.

Question 15

Question 15 asked: *"Do you have a centralised desk in the banking book involved with IRTs of interest rate risk?"*

IRT of interest rate risk: centralised desk in the banking book — Table A13

	Number of respondents	Per cent of respondents
Yes	25	49.0%
No	26	51.0%
Total	51	100%

Finding from responses to Question 15: Market practices appear to differ between respondents. Half of the respondents have a centralised desk in the banking book involved with IRTs of interest rate risk.

Question 16

Question 16 asked: *"Which of the following best describes a typical instrument or transaction involved in IRTs of interest rate risk?"*

IRT of interest rate risk: typical instrument or transaction used — Table A14

	Number of respondents	Per cent of respondents
Structured notes	5	10.6%
Interest rate options	1	2.1%
"Traditional" transactions	25	53.2%
Other instrument or transaction	16	34.0%
Total	47	100%

Finding from responses to Question 16: More than half of the respondents reported that the typical instruments involved in IRTs of interest rate risk are "traditional" transactions. The remaining banks reported IRTs of potentially more complex instruments.

Question 17

Question 17 asked: *"Please provide the most relevant hedging instrument, in terms of risk exposures covered, in your execution of IRTs of interest rate risk in the banking book."*

IRT of interest rate risk: hedging instruments		Table A15
	Number of respondents	Per cent of respondents
Swaps, futures, forwards	45	95.7%
Other (eg swaptions)	2	4.3%
Total	47	100%

Finding from responses to Question 17: The majority of the respondents use traditional hedging instruments for the execution of IRTs of interest rate risk in the banking book. However two banks reported that they use less common instruments (eg swaptions).

Question 18

Question 18 asked: *"Please provide the most relevant hedging instrument, in terms of risk exposures covered, in your execution of IRTs of credit risk in the banking book."*

IRT of credit risk: hedging instruments		Table A16
	Number of respondents	Per cent of respondents
Single name CDS	27	73.0%
Other	10	27.0%
Total	37	100%

Finding from responses to Question 18: Slightly less than three quarters of respondents use single name credit default swaps (CDS) as hedging instruments in the execution of IRTs of credit risk in the banking book. The remaining banks indicate that other types of instruments were most relevant for such IRTs.

Question 19

Question 19 asked: "Please provide the most relevant hedging instrument, in terms of risk exposures covered, in your execution of IRTs of equity risk in the banking book."

IRT of equity risk: hedging instruments		Table A17
	Number of respondents	Per cent of respondents
Swaps, futures, forwards	18	58.1%
Indices, non-linear instruments	7	22.6%
Other instrument	6	19.4%
Total	31	100%

Finding from responses to Question 19: More than half of the respondents use swaps, futures and forwards as hedging instruments in the execution of IRTs of equity risk in the banking book. 40% of respondents use indices and non-linear instruments or other types of instruments.

Question 20

Question 20 asked: "Is the IRT subject to a dedicated monitoring and/or limits system within the bank?"

IRT: dedicated monitoring and/or limits system? Table A18

	Number of respondents	Per cent of respondents
Yes	28	59.6%
No	19	40.4%
Total	47	100%

Finding from responses to Question 20: Banks' internal control systems for IRT split up in two nearly equal groups. The first group of banks has established monitoring and/or a limit system for IRT, the other group did not install such internal control systems.

Question 21

Question 21 asked: "When conducting the IRTs for interest rate risk in the banking book, is the basis risk arising from the IRT instrument (from banking to trading book) and the external hedge (ie the instrument used to transfer risk from the trading book to the market), captured in your minimum regulatory capital requirements for the trading book?"

IRT of interest rate risk: regulatory capital held for basis risk? Table A19

	Number of respondents	Per cent of respondents
Yes	37	85%
No	6	15%
Total	43	100%

Finding from responses to Question 21: Even if basis risk may arise from the IRT instrument (interest rate risk transfers from banking to trading book) and the external hedge (ie the instrument used to transfer risk from the trading book to the market), more than 10% of the respondents do not capture this risk in their minimum regulatory capital requirements for the trading book.

Questions 22 and 23

Question 22 asked: "When conducting the IRTs for interest rate risk in the banking book, is the holding horizon (ie time to maturity) of the IRT instrument (from banking to trading book) the same as that of the instrument used to transfer risk from the trading book to the market?

Question 23 asked: "If your answer to question 22 is "A1" (No), does your bank hold capital for differences in the different holding horizons (ie time to maturity)?

IRT on interest rate risk: mismatch in holding horizons — Table A20

	Number of respondents	Per cent of respondents
No	21	48.8%
of which: the mismatch is capitalised	*12*	*52.2%*
Yes	22	51.2%
Total	43	100%

Finding from responses to Questions 22 and 23: For half of the respondents to Question 22, there is no mismatch in holding horizons between the instrument used for IRT from banking to trading book and the instrument used to transfer risk from the trading book to the market. In cases where a mismatch occurs, more than half of the respondents indicated that capital was held to take into account for these differences.

Question 24

Question 24 asked: "When conducting IRTs, basis risks between the underlying position and the hedging instrument can arise. Which of the following bases are entirely monitored and managed within the banking book?

IRT: types basis risk that are monitored or managed — Table A21

	Number of respondents	Per cent of respondents
Reference Rate basis risk (eg Libor vs "Policy" rate)	6	12.8%
Tenor basis risk (eg Libor 3M vs Libor 6M)	2	4.3%
Cross-currency basis risk	1	2.1%
A combination of the above answers	28	59.6%
None of the above	10	21.3%
Total	47	100%

Finding from responses to Questions 24: The majority of respondents reports that different basis risks between the underlying positions and the hedging instruments are entirely monitored and managed within the banking book. However, more than 20% do not monitor and manage these risks.

2. Proposed Internal Model Approach: Non-Modellable Risk Factors

Questions 25 and 26

Question 25 asked: *"Please provide an estimate of the increase in the aggregate SES (ie the figure in cell C70 of the "TB general" worksheet) if risk factors derived from other modellable risk factors via extrapolation (rather than interpolation) were treated as non-modellable."*

Question 26 asked: *"Please provide an estimate of the increase in the aggregate SES (ie the figure in cell C70 of the "TB general" worksheet) if risk factors that are derived from other modellable risk factors via a deterministic function were treated as non-modellable. (Note: for this purpose a deterministic function of modellable risk factors is defined as a function that is sensitive only to modellable risk factors, with all other parameters and definition of the function having a fixed calibration that does not change over time)."*

NMRFs derived from extrapolation or non-deterministic function - impact on SES — Table A22

	NMRFs via extrapolation (increase)		NMRFs via non-deterministic function (increase)	
	Number of respondents	Per cent of respondents	Number of respondents	Per cent of respondents
0% to 20%	7	77.78%	5	55.6%
21% to 40%	1	11.11%	0	0.00%
41% to 60%	0	0.00%	0	0.00%
61% to 80%	0	0.00%	0	0.00%
81% to 100%	0	0.00%	0	0.00%
101% to 200%	0	0.00%	1	11.1%
> 200%	1	11.11%	3	33.3%
Total	9	100%	9	100%

Finding from responses to Questions 25 and 26: A majority of participating banks in the QIS could classify any risk factors extrapolated from other modellable risk factors as modellable. If banks were not allowed to perform such an extrapolation, the increase in the aggregate *SES* would lie below 20% for the majority of the respondents. Several banks reported a material increase of over 200%. Note that 10 banks were excluded from the analysis because they reported an aggregate *SES* equal to zero (or not available).

Questions 27, 28 and 29

Question 27 asked: *"Please provide an estimate of the decrease in the aggregate SES (ie the figure in cell C70 of the "TB general" worksheet) if the same stressed period as is used for the Expected Shortfall model for modellable risk factors were used to capitalise each non-modellable risk factor."*

Question 28 asked: *"Please provide an estimate of the decrease in the aggregate SES (ie the figure in cell C70 of the "TB general" worksheet) if a separate stress scenario is used for each non-modellable risk factor (as per the QIS instructions) and the resulting stressed losses were aggregated assuming zero correlation*

within each risk class (ie interest rate, credit spread, equity, commodity and FX) and then aggregated across risk classes as a simple sum."

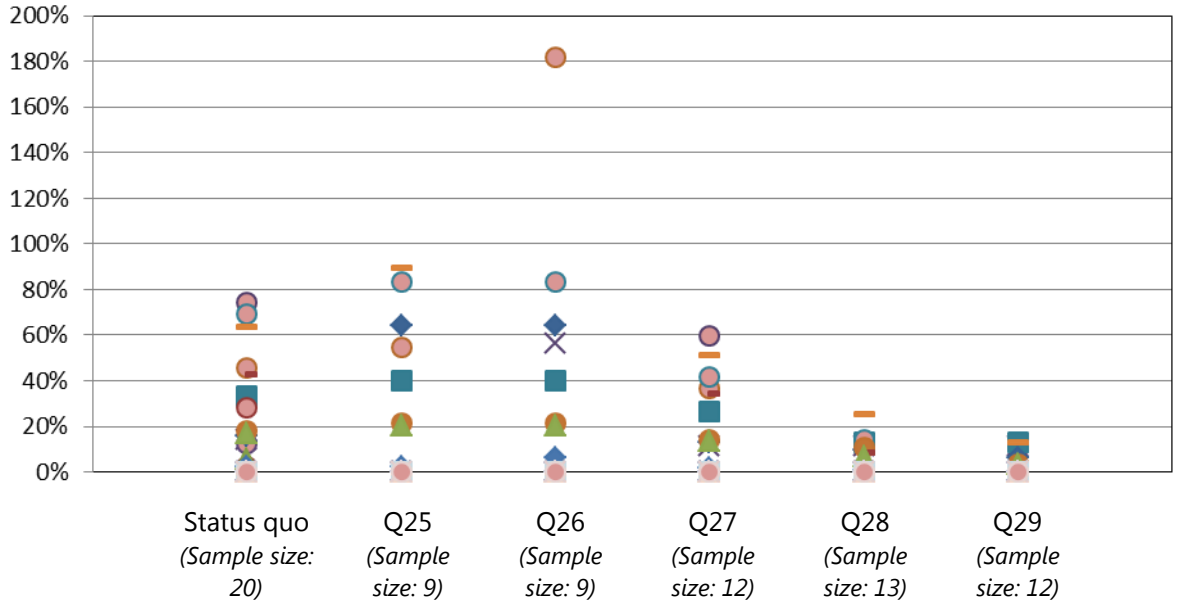
Question 29 asked: *"Please provide an estimate of the decrease in the aggregate stressed expected shortfall (SES) (ie the figure in cell C70 of the "TB general" worksheet) if a separate stress scenario is used for each non-modellable risk factor (as per the QIS instructions) and the resulting stressed losses were aggregated assuming zero correlation both within and across each risk class." [Table A23 and Graph 1]*

NMRFs: stressed period identification and aggregation of the stressed losses – impact on SES — Table A23

	Decrease in case the same stressed period as MRFs were used		Decrease in case zero correlation within each risk class were used		Decrease in case zero correlation within and across each risk class were used	
	Number of respondents	Per cent of respondents	Number of respondents	Per cent of respondents	Number of respondents	Per cent of respondents
0% to 20%	11	91.7%	3	23.1%	2	16.7%
21% to 40%	1	8.3%	2	15.4%	0	0.0%
41% to 60%	0	0.0%	3	23.1%	2	16.7%
61% to 80%	0	0.0%	3	23.1%	3	25.0%
81% to 100%	0	0.0%	2	15.4%	5	41.7%
Total	12	100%	13	100%	12	100%

Finding from response to Question 27, 28 and 29: By considering less conservative assumptions on stress periods for the capital treatment of non-modellable risk factors, the decrease in the aggregate *SES* is generally small for the majority of the respondents. In comparison, by considering less conservative assumptions on aggregation techniques for some banks, the decrease in aggregate *SES* is more significant.

Note that ten banks reporting an aggregate *SES* equal to zero (or not available) are excluded from the analysis of responses to these questions. If these banks were included in the analysis, there would be eight additional responses that fall in the "0% to 20%" range for each of the three questions (see first row of Table A23). Additionally, there would be two more responses in the 21% to 40%" range for Question 28 and two more responses in the "41% to 60% range for Question 29.



The above graph summarises the changes (in per cent) to the aggregate *SES* under the different calculation setups, defined under Question 25 through to Question 29. The status quo in the graph represents the ratio between the *SES* and the total capital charge for market risk (based on a sample of 20 respondents). The columns labelled Q25 and Q26 reflect the same ratio under a more conservative definition of non-modellable risk factors. The three columns labelled Q27, Q28 and Q29 in the graph shows the impact of less conservative stress period settings and aggregation techniques.

3. Proposed Standardised Approach: Vega and Residual Risks

Question 30

Question 30 asked: *"In the FAQs on Basel III monitoring, Section 6.3 (FAQ no 3 and no 27), for the purpose of the QIS, a choice of performing either a "full" or "reduced" computation of vega risk is made available to participating banks. Please specify the computational method used by your bank. If the answer to this question is "A3", please provide further detail of your approach in separate qualitative Word document to be submitted to national authorities together with the QIS template."*

Vega risk: full vs. reduced computation — Table A24

	Number of respondents	Per cent of respondents
"Full" vega risk computation	9	21.4%
"Reduced" vega risk computation	29	69.1%
A combination of the "full" and "reduced" vega risk computation	4	9.5%
Total	42	100%

Finding from responses to Question 30: Almost 70% of the respondents computed vega risk by applying the reduced vega risk computation approach. Four banks considered a mixed approach.

Question 31

Question 31 asked: *"In the FAQs on Basel III monitoring, Section 6.3 (FAQ no 28) refers to instruments that are subject to "residual risks" (beyond those captured by the residual buckets). How large is the sum of the gross notional amounts of these instruments as a percentage of the total SA capital requirement? Please tick the closest number."*

Residual risks: significance in terms of total SA capital requirement — Table A25

	Number of respondents	Per cent of respondents
0.1% to 1%	17	46.0%
1% to 10%	2	5.4%
10% to 100%	7	18.9%
100% to 500%	6	16.2%
500% to 1,000%	1	2.7%
1,000% to 5,000%	1	2.7%
5,000% to 10,000%	0	0.0%
> 10,000%	3	8.1%
Total	37	100%

Question 32

Question 32 asked: *"In the FAQs on Basel III monitoring, Section 6.3 (FAQ no 28) refers to instruments that are subject to "residual risks" (beyond those captured by the residual buckets). How large is the sum of the gross notional amounts of these instruments as a percentage of the total gross notional amounts of all instruments in the trading book? Please tick the closest number."*

Residual risks: Significance of total gross notional amounts of all instruments in the trading book — Table A26

	Number of respondents	Per cent of respondents
0.1% to 1%	30	81.1%
1% to 5%	4	10.8%
5% to 10%	2	5.4%
10% to 15%	0	0.0%
15% to 30%	1	2.7%
30% to 70%	0	0.0%
> 70%	0	0.0%
Total	37	100%

Finding from responses to Questions 31 and 32: For more than half of the respondents the ratio between the gross notional amounts of the instruments that are subject to "residual risks" and the total SA capital requirement lies under 10%. Nevertheless for the remaining half of the respondents the estimated impact is more material and the ratio was even estimated to turn higher than 100 for some banks.