Response to consultation on Impact Metrics for the Risk Based Supervision of Financial Firms by the Central Bank of Ireland and on Impact Based Levies

Response to questions 1 and 2

The approach you are taking to selecting divisors for each impact metric and associated firm category, while a proven method has some drawbacks. The main one is that the effect of the divisor selection is to add a step between getting from a metric score to an impact rating. This means that it becomes more difficult to see the relationship between the metric score and the rating, especially if a change is needed to the levels.

Another drawback is that you will have no capability of including non-numeric metrics. This is often required where there is no adequate numeric available for a particularly important factor.

An approach we have seen taken successfully is to generate a set of score levels for each impact metric and associated firm category. Therefore, for each metric score that is received a rating is automatically generated at the impact metrics and firm category level. In the cases where a numeric value is not available a subjective assessment may be used to generate a rating. It is now very clear to all concerned where a firm's scores rate for each impact metric.

e.g.

Impact Rating	Low	Medium Low	Medium High	High
Retail deposits (000s)	0 – 50,000	50,000 – 100,000	100,000 – 200,000	>200,000
Commercial loans (000s)	0 – 100,000	100,000 – 200,000	200,000 – 300,000	>300,000
Number of customers	0 – 1,000	1,000 – 5,000	5,000 – 10,000	>10,000

Bank A 2011

Impact Rating	Low	Medium Low	Medium High	High
Retail deposits	36,000			
Commercial loans				416,000
Number of customers		3,564		

It is much easier for an expert to set level values for a particular metric per firm category rather than set a divisor.

This approach still enables the combination of metrics and actually enables more mathematical models to be considered.

There are four types of aggregation rules (Rollup Calculation algorithms) that might be considered:

Distribution Based

The distribution based algorithm produces an overall score based on the number of distinct scores of each type. It askes for an expert to specify the boundaries between Green/Amber and Amber/Red. These default to 20% and 50% respectively.
Start with the highest rank score
Calculate the % of input scores with this score taking the score weightings into account.

If $\frac{\text{No. of underlying RED indicators}}{\text{No. of underlying indicators}}$ > 20%, the rollup is red, else go to #2.

If $\frac{\text{No. of underlying RED indicators} + \text{No. of underlying AMBER indicators}}{\text{No. of underlying indicators}}$ > 50%, rollup amber, else green.

Average

For the "Average" algorithm it askes for an expert to assign a numerical value to each score and a second to specify the boundaries between Green/Amber and Amber/Red. The numerical equivalents might be Red=3, Amber = 2, Green = 1 and the boundaries might be 1.5 and 2.5 respectively. The average value of these numbers is then calculated and compared to a set of thresholds that delineate the score.
Let Red=3, Amber=2, Green=1.
Average Score = ∑Indicator Score /No. of underlying indicators.
If Average Score > 2.5, the rollup is Red, else go to #4.
If Average Score > 1.5, the rollup is Amber, else the rollup is Green

Weighted Average

Weighted average is the same as above but more weight can be applied to indicators that hold more importance.
Average Score = ∑Indicator Score*Indicator Weight /No. of underlying indicators.

Fuzzy Logic

Please see the attached discussion paper for a method that supports the combination of metrics that are related i.e. if product complexity is rising fast and management quality is low then impact rating is high.