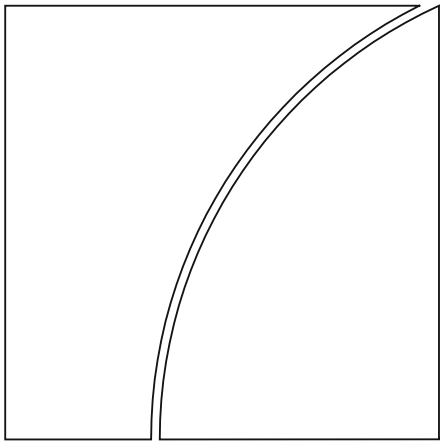
Basel Committee
on Banking Supervision

Consultative Document



Simplified alternative to the standardised approach to market risk capital requirements

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Contents

Simplified alternative to standardised approach to market risk capital requirements 1

Background 1

Next steps 2

Simplified alternative to the standardised approach to market risk capital requirements

Background

The standardised approach included in the standard *Minimum capital requirements for market risk*[1] (hereafter "revised market risk framework") was developed to provide a risk-sensitive standard for banks that do not require a modelled treatment for market risk, to serve as a credible fall back to the internal models approach (IMA) and to facilitate transparent, consistent and comparable reporting of market risk across banks and jurisdictions.

The primary component of the standardised approach is the "sensitivities-based method" (SbM), which provides a framework that can be applied uniformly across a wide spectrum of banks in different jurisdictions while being sufficiently risk-sensitive with respect to the risks relevant to large, internationally active banks.

As a standardised approach, however, the complexity of the SbM may pose implementation challenges for some banks (eg banks with a low concentration of trading book activity and smaller banks that typically do not have sufficient infrastructure for computing the SbM). Moreover, in some jurisdictions, large banks face less complex risks. Broadly speaking, the current requirements of the SbM make the revised market risk framework's standardised approach difficult or not necessarily appropriate to implement and adopt across all Basel Committee on Banking Supervision member jurisdictions and non-member jurisdictions.

For these reasons, and in order to make available a variant of the market risk framework that might be more suitable for implementation by supervisory authorities that wish to apply the Basel framework to banks other than large, internationally active banks, the Committee has developed a proposal for an alternative, simpler version of the SbM. The reduced sensitivities-based method (R-SbM) is intended to address implementation challenges for banks that maintain smaller or simpler trading books. For banks that adopt the R-SbM, the standardised approach capital requirement will be the simple sum of three components: (i) the risk charges under the R-SbM (as proposed in this Consultative Document); (ii) the default risk charge (detailed in paragraphs 134-175 of the revised market risk framework); and (iii) the residual risk add-on (detailed in paragraph 58 of the revised market risk framework).

The proposed R-SbM makes a number of significant simplifications relative to the SbM, including the removal of capital requirements for vega and curvature risks, simplification of the basis risk calculation and a reduction in risk factor granularity and the correlation scenarios to be applied in associated calculations.

While the use of the proposed R-SbM generally would be subject to supervisory approval and oversight, the proposed R-SbM should be applicable only to banks that meet certain qualitative and quantitative criteria, ensuring there is no cherry picking with respect to approaches for calculating market risk capital requirements. National supervisors would have the authority to mandate that a bank apply the full SbM instead of the proposed R-SbM, even if the bank meets both the qualitative and quantitative criteria specified in the standard.

[1] See Basel Committee on Banking Supervision, *Minimum capital requirements for market risk*, www.bis.org/bcbs/publ/d352.pdf, January 2016.

The Committee intends the proposed simplified alternative to the market risk standardised approach to further the goal of harmonisation of prudential standards across all jurisdictions and to mitigate the need for jurisdictions to make their own simplifications to the SbM or to retain the Basel II standardised approach as currently specified. Nevertheless, the Committee acknowledges that the design of the R-SbM is significantly different from the design of the already widely-used Basel II standardised approach, and therefore could pose implementation challenges and costs that are disproportionate to the relative materiality of trading book risks for those banks for which this alternative has been proposed. In this regard, the Committee is also considering an alternative option of retaining a recalibrated version of the Basel II standardised approach. Although continued use of a version of the Basel II standardised approach by banks with less trading activity would represent a departure from the new, more risk sensitive market risk standard that will be used by large, internationally active banks, an upward recalibration of the Basel II standardised approach would serve to mitigate concerns over market risk capital requirement calibration that motivated the Committee's development of the revised market risk framework's standardised approach.

The Committee encourages commenters to provide views on whether the R-SbM as proposed represents a sufficient level of simplification to achieve the goal of harmonisation of prudential rules across all jurisdictions, or whether instead retaining the Basel II standardised approach, subject to a high-level recalibration to ensure a suitable conservativeness relative to that of the revised market risk framework, would serve as a better alternative.

Subject to any further recommendations, the Committee intends the simplified alternative to the market risk standardised approach to be effective concurrent with the implementation date for the revised market risk framework.

Next steps

The Committee welcomes comments from the public on all aspects of this consultative document by 27 September 2017. All comments will be published on the Bank for International Settlements website unless a respondent specifically requests confidential treatment.

Once the Committee has reviewed responses, it intends to publish the final revised standard within an appropriate timeframe. Ahead of this publication, implementation arrangements (including the timetable) will be discussed by the Committee as appropriate, taking into account the target implementation of any finalised standard in tandem with the Pillar 1 implementation date for the broader revised market risk framework.

F. Market Risk – Standardised Approach Reduced Sensitivities-based Method (R-SbM)

1. Governance

204. Banks intending to use the reduced sensitivities-based method (R-SbM) instead of the sensitivities-based method (SbM) must fulfil the following criteria, on the basis of a quarterly assessment:

- The bank must not be a G-SIB or D-SIB.
- The bank must not be engaged in writing options (with the exception of back-to-back options and covered options whereby the bank owns the securities it may need to deliver under the terms of the option).
- The bank must not use the internal models approach for any of its trading desks.
- As measured by the bank's relevant accounting standard, the bank's total non-derivative trading book assets and liabilities plus the sum of the gross fair value of its trading book derivative assets and liabilities must not exceed [€1.0 billion].[2]
- The bank's total market risk-weighted assets, when using the R-SbM, divided by its total risk-weighted assets, are less than [5%].
- [The aggregate notional amount of non-centrally cleared derivatives (including both banking book and trading book positions) must not exceed [€X billion].]
- The bank must not hold any correlation trading positions.

205. In addition, the use of R-SbM is subject to supervisory approval and oversight. Supervisors can mandate that banks with fairly complex or sizeable risks in specific risk classes apply the full SbM instead of the R-SbM, even if those banks fulfil the criteria mentioned in paragraph 204. Banks should update supervisors if their trading book exposures evolve to include risk factors not sufficiently captured by the R-SbM or if their trading book exposures grow to exceed the quantitative thresholds which would disqualify them from eligibility to use the R-SbM.

206. When a bank uses the R-SbM for its market risk capital calculation, no partial use is permitted between the R-SbM and SbM.

207. The use of the R-SbM does not exempt banks from computing all other requirements of the standardised approach, other than the SbM. In particular, banks using the R-SbM are still subject to the default risk charge and the residual risk add-on.

208. The following text uses the same definitions as in the SbM. In particular, the definitions of the sensitivities are identical.

2. R-SbM: structure

(i) R-SbM: delta risk capital

209. This sub-section provides the aggregation formula for calculating capital requirements within each bucket, as well as the formula for calculating capital requirements across buckets, for each risk class covered under the delta risk framework. In this context, delta risk consists of a set of prescribed risk factors

[2] In this calculation, liabilities must be included at their absolute value.

and sensitivities that are defined in Section 3. The *net sensitivities* to each risk factor within a risk class are multiplied by a respective risk weight provided in Section 4. These weighted sensitivities are then aggregated by prescribed formulae using correlations provided in Section 4.

210. Delta risk is captured using the below aggregation formulae through the following step-by-step approach:

(a) Find a net sensitivity s_k across instruments to each risk factor k. For instance, all sensitivities to the parallel increase of the EUR curve should offset, irrespective of the instrument from which they derive.[3]

(b) Weight the net sensitivity s_k to each risk factor k by the corresponding risk weight RW_k as defined in Section 4 to compute the weighted sensitivity WS_k.

$$WS_k = RW_k s_k$$

(c) To compute the risk position of a bucket, weighted sensitivities are aggregated across risk factors within the same bucket using the corresponding prescribed correlation ρ_{kl} as set out in the following formula:

$$K_b = \sqrt{\sum_k WS_k^2 + \sum_k \sum_{k \neq l} \rho_{kl} WS_k WS_l}$$

where the quantity within the square root function is floored at zero.

(d) Risk positions should then be aggregated across buckets within each risk class, using the corresponding prescribed correlations γ_{bc} as set out in the following formula:

$$\text{Delta} = \sqrt{\left| \sum_b K_b^2 + \sum_b \sum_{c \neq b} \gamma_{bc} S_b S_c \right|}$$

where $S_b = \sum_k WS_k$ for all risk factors in bucket b and $S_c = \sum_k WS_k$ in bucket c.

3. R-SbM: definitions of the risk factors

211. In order to compute general interest rate risk (GIRR), for each currency in which interest rate-sensitive instruments are denominated, banks must compute their sensitivity to a 1 basis point (0.0001) increase of the five-year or shorter-than-five-year tenors of the yield curve divided by 0.0001 (ie 0.01%), and their sensitivity to an increase by 1 basis point (0.0001) of the longer-than-five-year tenors of the yield curve.

- The risk-free yield curve per currency should be constructed using money market instruments held in the trading book which have the lowest credit risk, such as overnight index swaps (OIS). Alternatively, the risk-free yield curve should be based on one or more market-implied swap curves used by the bank to mark positions to market (eg interbank offered rate (BOR) swap curves).
- When the data on market-implied swap curves described above are insufficient, the risk-free yield curve may be derived from the most appropriate sovereign bond curve for a given currency. In such cases, sovereign bonds must still be included in the credit spread risk charge. The sensitivity

[3] This example can be generalised as follows: if a bank's portfolio is made of two interest rate swaps on three-month Euribor with the same fixed rate and same notional but of opposite direction, the general interest rate risk on that portfolio would be null.

of the bond to changes in the yield curve should be allocated to both the GIRR and to CSR risk classes.

212. The GIRR delta risk factors also include a flat curve of market-implied inflation rates for each currency with term structure not recognised as a risk factor.

- The sensitivity to the inflation rate from the exposure to implied coupons in an inflation instrument gives rise to a specific capital requirement. All inflation risks for a currency should be aggregated to one number via simple sum.
- This risk factor is only relevant for an instrument when a cash flow is functionally dependent on a measure of inflation (eg the notional amount or an interest payment depending on a consumer price index). GIRR risk factors other than for inflation risk will apply to such an instrument notwithstanding.
- Inflation rate risk is considered in addition to the sensitivity to interest rates from the same instrument, which should be allocated, according to the GIRR framework, in the term structure of the relevant risk-free yield curve in the same currency.

213. The GIRR delta risk factors also include one of two possible cross currency basis risk factors[4] for each currency (ie each GIRR bucket) with term structure not recognised as a risk factor (ie both cross currency basis curves are flat).

- The two cross-currency basis risk factors are the basis of each currency over USD or the basis of each currency over EUR. For instance, an AUD-denominated bank trading a JPY/USD cross-currency basis swap would have a sensitivity to the JPY/USD basis but not to the JPY/EUR basis.
- Cross-currency bases that do not relate to either the basis over USD or the basis over EUR should be computed either on "basis over USD" or "basis over EUR" but not both. GIRR risk factors other than for cross-currency basis risk will apply to such an instrument notwithstanding.
- Cross-currency basis risk is considered in addition to the sensitivity to interest rates from the same instrument, which should be allocated, according to the GIRR framework, to the relevant risk-free yield curve in the same currency.

214. In order to compute Credit Spread Risk (CSR) non-securitisation risk factors, banks must, for each risk issuer credit spread curve, compute their sensitivity to a 1 basis point (0.0001) parallel increase of that curve, divided by 0.0001 (ie 0.01%).

215. In order to compute CSR securitisation, risk factors, banks must, for each risk tranche credit spread curve, compute their sensitivity to a 1 basis point (0.0001) parallel increase of that curve, divided by 0.0001 (ie 0.01%).

216. The Equity risk factors are all the equity spot prices, with the sensitivity calculated by taking the value of a 1 percentage point change in the equity spot price, divided by 0.01 (ie 1.0%).

217. The Commodity risk factors are all the commodity spot prices, with the sensitivity calculated by taking the value of a 1 percentage point change in the commodity spot price, divided by 0.01 (ie 1.0%).

218. The Foreign exchange (FX) risk factors are all the exchange rates between the currency in which an instrument is denominated and the reporting currency, with the sensitivity calculated by taking the value of a 1 percentage point change in the exchange rate, divided by 0.01 (ie 1.0%).

[4] Cross-currency bases are bases added to a yield curve in order to evaluate a swap for which the two legs are paid in two different currencies. They are in particular used by market participants to price cross-currency interest rate swaps paying a fixed or a floating leg in one currency, receiving a fixed or a floating leg in a second currency, and including an exchange of the notional in the two currencies at the begin date and the end date of the swap.

4. R-SbM: Prescribed buckets, risk weights and correlations

(i) Delta GIRR

Buckets

219. Each bucket represents an individual currency exposure to GIRR.

Risk weights

220. The risk weights are set as follows:

Risk factor	Risk weight
≤ 5 years	5%
> 5 years	5%

221. A risk weight of 3% is set for the inflation risk factor and the cross currency basis risk factors.

Correlations

222. The correlation ρ_{kl} between a weighted sensitivity WS_k to an increase in the short end of the yield curve and a sensitivity WS_l to an increase in the long end of the yield curve is 20%.

223. The delta risk correlation ρ_{kl} between a weighted sensitivity WS_k to the inflation curve and a sensitivity WS_l to the yield curve (to either the short end or the long end of the yield curve) should be 40%.

224. The delta risk correlation r_{kl} between a weighted sensitivity WS_k to a cross-currency basis curve and a weighted sensitivity WS_l to any other GIRR risk factor (including another cross-currency basis curve, where relevant) should be 0%.

225. The parameter $\gamma_{bc} = 50\%$ should be used for aggregating across buckets, which represent different currencies.

(ii) Delta CSR non-securitisations

Buckets

226. Sensitivities or risk exposures should first be assigned to a bucket according to the following table:

Bucket number	Credit quality	Sector
1	Investment grade (IG)	Sovereigns including central banks, multilateral development banks Local government, government-backed non-financials, education, public administration
2		Financials including government-backed financials
3		Other sector
4	High yield (HY) & non-rated (NR)	Sovereigns including central banks, multilateral development banks Local government, government-backed non-financials, education, public administration
5		Financials including government-backed financials
6		Other sector

227. To assign a sensitivity to a sector, banks must rely on the classification that is commonly used in the market for grouping issuers by industry sector. The bank must assign each issuer to only one of the sector buckets and it must assign all issuers from the same industry to the same sector.

228. In assigning risk weights, banks must distinguish between (i) sovereigns including central banks and multilateral development banks and (ii) local government, government-backed non-financials, education and public administration, as these receive distinct risk weights for buckets 1 and 4, as detailed in paragraph 229.

Risk weights

229. The risk weights for buckets 1-6 are set out in the following table.

Bucket number	Risk weight
1	1.0% for Sovereigns including central banks, multilateral development banks 5.0% for Local government, government-backed non-financials, education, public administration
2	10.0%
3	15.0%
4	5.0% for Sovereigns including central banks, multilateral development banks 10.0% for Local government, government-backed non-financials, education, public administration
5	25.0%
6	30.0%

Correlations

230. Between two weighted sensitivities WS_k and WS_l within the same bucket, the correlation parameter ρ_{kl} is equal to 1 where the two names of sensitivities k and l are identical, and 35% otherwise.

231. The correlation parameter γ_{bc} is set as follows:

Bucket	1	2	3	4	5	6
1		10%	0%	50%	5%	0%
2			0%	5%	50%	0%
3				0%	0%	50%
4					10%	0%
5						0%
6						

(iii) Delta CSR securitisations

Buckets

232. Sensitivities should first be assigned to a bucket according to the following table:

Bucket number	Credit quality	Sector
1	Senior Investment grade (IG)	RMBS
2		Non-mortgage retail securitisations
3		CMBS
4		Other
5	Non-Senior Investment grade (IG)	RMBS
6		Non-mortgage retail securitisations
7		CMBS
8		Other
9	High yield (HY) & non-rated (NR)	RMBS
10		Non-mortgage retail securitisations
11		CMBS
12		Other

233. To assign a sensitivity to a sector, banks must rely on a classification that is commonly used in the market for grouping tranches by type. The bank must assign each tranche to one of the sector buckets in the table and it must assign all tranches from the same industry to the same sector.

Risk weights

234. The risk weights for buckets 1-12 are set out in the following table:

Bucket number	Risk weight
1	2.0%
2	5.0%
3	5.0%
4	10.0%
5	5.0%
6	6.25%
7	6.25%
8	12.5%
9	3.5%
10	8.75%
11	8.75%
12	17.5%

Correlations

235. Between two weighted sensitivities WS_k and WS_l within the same bucket, the correlation parameter ρ_{kl} is equal to 1 where the two names of sensitivities k and l are within the same bucket and related to the same securitisation tranche (more than 80% overlap in notional terms), and 40% otherwise.

236. The correlation parameter γ_{bc} is set to 0% and should be applied in the aggregation across different buckets.

(v) Equity risk

Buckets

237. Sensitivities should first be assigned to a bucket as defined in the following table:

Bucket number	Market cap	Economy	Sector
1	Large	Emerging market economy	Financials including government-backed financials, real estate activities, technology
2			Other sector
3		Advanced economy	Financials including government-backed financials, real estate activities, technology
4			Other sector
5	Small	Emerging market economy	All sectors
6		Advanced economy	All sectors

238. Market capitalisation ("market cap") is defined as the sum of the market capitalisations of the same legal entity or group of legal entities across all stock markets globally.

239. "Large market cap" is defined as a market capitalisation equal to or greater than USD 2 billion and "small market cap" is defined as a market capitalisation of less than USD 2 billion.

240. The advanced economies are Canada, the United States, Mexico, the euro area, the non-euro area western European countries (the United Kingdom, Norway, Sweden, Denmark and Switzerland), Japan, Oceania (Australia and New Zealand), Singapore and Hong Kong SAR.

241. To assign a sensitivity to a sector, banks must rely on a classification that is commonly used in the market for grouping issuers by industry sector. The bank must assign each issuer to one of the sector buckets in the table and it must assign all issuers from the same industry to the same sector.

242. For multinational multi-sector equity issuers, the allocation to a particular bucket must be done according to the most material region and sector in which the issuer operates.

Risk weights

243. The risk weights for the net sensitivities to equity spot price for buckets 1-6 are set out in the following table:

Bucket number	Risk weight for Equity spot price
1	60%
2	60%
3	50%
4	40%
5	70%
6	60%

Correlations

244. The correlation parameter ρ_{kl} between two weighted sensitivities WS_k and WS_l to Equity spot price within the same bucket are set out in the following table:

Bucket number	Correlation (ρ_{kl})
1	15%
2	15%
3	25%
4	25%
5	7.5%
6	12.5%

245. The correlation parameter γ_{bc} that applies to the aggregation of risk positions across different buckets. γ_{bc} is set at 15%.

(vi) Commodity risk

Buckets

246. Eleven buckets are defined, one for each of the 11 commodity types defined in the next paragraph.

Risk weights

247. The risk weights depend on the commodity bucket (which group several commodities, eg the precious metals bucket includes silver and gold) as set out in the following table:

Bucket	Commodity category	Risk weight
1	Solid combustibles (eg coal, charcoal, wood, nuclear fuel)	40%
2	Liquid combustibles (eg crude oil, heating oil, gasoline, diesel, aviation fuel, bioethanol)	45%
3	Electricity and carbon trading	70%
4	Freight	90%
5	Non-precious metals	50%
6	Gaseous combustibles (eg natural gas, methane, city gas)	55%
7	Precious metals (including gold)	30%
8	Grains & oilseed	45%
9	Livestock & dairy	35%
10	Softs and other agriculturals	45%
11	Other commodity	60%

Correlations

248. Between two weighted sensitivities WS_k and WS_l within the same bucket, the correlation parameter ρ_{kl} is equal to 1 where the two commodities of sensitivities k and l are identical, and to the correlations in the table below otherwise.

Bucket	Commodity category	Correlation (ρ_{kl})
1	Solid combustibles (eg coal, charcoal, wood, nuclear fuel)	55%
2	Liquid combustibles (eg crude oil, heating oil, gasoline, diesel, aviation fuel, bioethanol)	95%
3	Electricity and carbon trading	40%
4	Freight	80%
5	Non-precious metals	60%
6	Gaseous combustibles (eg natural gas, methane, city gas)	65%
7	Precious metals (including gold)	55%
8	Grains & oilseed	45%
9	Livestock & dairy	15%
10	Softs & other agriculturals	40%
11	Other commodity	15%

249. The correlation parameters γ_{bc} applying to risk positions across different buckets are set at:

(a) 20% if bucket b and bucket c fall within bucket numbers 1-10.

(b) 0% if either bucket b or bucket c is bucket number 11.

250. Further definitions:

- For buckets 1, 2, 6 and 11, two substances are deemed to be the same commodity only if they serve identical practical purposes. For example, if a fuel (eg straight petrol) can be used for one car, but not another (eg diesel), the fuels used for the two cars are distinct physical commodities.

- For bucket 3, each time interval at which the electricity can be delivered and that is subject to a contract that is made on a financial market is considered a distinct electricity commodity (just as silver and gold are considered distinct precious metals). Electricity produced in various areas such as "electricity NE", "electricity SE" and "electricity North" should also be considered distinct electricity commodities and therefore the correlation parameters in the preceding paragraphs should apply between sensitivities to each of those electricity types. In addition, the electricity risk factor can be either the spot or the forward price, as transactions on the forward price are more frequent than transactions on spot price.
- For bucket 4, each combination of freight route and each week at which a good has to be delivered is a distinct physical commodity.
- For buckets 5 and 7, two substances are deemed to be the same commodity if the same chemical element makes up the majority of the mass. For example, scrap metal and newly produced steel both consist predominantly of iron, so they are deemed to be the same commodity.
- For buckets 8 and 10, substances taken from plants of the same species are deemed to be the same commodity.
- For bucket 9, meat and milk products are deemed to be different commodities. Otherwise, substances that have been taken from animals of the same species are deemed to be the same commodity.

(vii) Foreign exchange risk

Risk weights

251. A unique relative risk weight of 45% applies to all the FX net sensitivities.

(a) For the specified currency pairs by the Basel Committee[5], banks may use a risk weight of 32% at their discretion.

Correlations

252. A uniform correlation parameter γ_{bc} equal to 60% should be applied for aggregating across different buckets.

[5] Selected currency pairs by the Basel Committee are: USD/EUR, USD/JPY, USD/GBP, USD/AUD, USD/CAD, USD/CHF, USD/MXN, USD/CNY, USD/NZD, USD/RUB, USD/HKD, USD/SGD, USD/TRY, USD/KRW, USD/SEK, USD/ZAR, USD/INR, USD/NOK, USD/BRL, EUR/JPY, EUR/GBP, EUR/CHF and JPY/AUD.