APPENDIX I

ILLUSTRATIVE PRACTICAL EXAMPLES

The detailed example calculation provided in Chapter 5 of the article by Kim et al. (2024)[1] may provide further assistance for readers seeking a deeper understanding of the topic. The authors also discuss the calculation of the various limits and provide a more comprehensive explanation of the underlying calculation methodology. A simplified calculation example is provided below.

1. Methodology for Determining the Green Ratio

The Green Ratio shall in all cases be calculated as a ratio to gross exposure, as the quotient of green exposure and gross exposure, unless otherwise provided for in the Annex. For example, in the case of point 1 of the Annex, if the investment is implemented through the MFT (mandatory feed-in tariff) or RSS (renewable support system) scheme, the Green Ratio is 100 percent in respect of the investment loan amount.

Where the Annex does not contain specific provisions for the determination of the Green Ratio, it shall be calculated as follows:

Green Ratio = green exposure / gross exposure, where

green exposure represents the "green" portion of gross exposure. The "green" portion is the part of gross exposure that

- complies with the criteria set out in the Annex to this Notice (excluding point 9), i.e. the definition of environmentally sustainable exposures, and
- is verified by the credit institution in the manner specified in point 4.2 of this Notice.

For example, in the case of a drawn investment loan financing renewable energy generation (where the investment is not implemented through the MFT or RSS scheme), the "green" portion consists of the amount verified by invoices plus the amount of the undrawn loan facility. Only the portion of the undrawn loan facility that has been verified in the manner specified in point 4.2 of this Notice and is expected to comply with the criteria set out in point 1 of the Annex may be taken into account.

gross exposure means the gross carrying amount of the respective loan plus the amount of the undrawn loan facility / in the case of bonds, it means their fair value.

2. Impact of the preferential capital requirement at transaction level

The calculation method of the green supporting factor is illustrated below through an example. Assume further that the loan complies with the taxonomy criteria and is therefore eligible for a 7-percent discount at a 50-percent rate (green ratio). In the illustrative example, assume that the gross exposure is HUF 100 and that the risk weight assigned to the exposure type is 80 percent.

[1] Kim, D., Raciborski, E., & Várgedő, B. (2024). Experiences from the MNB's Green Preferential Capital Requirement Programme and the Extension of the Programme. *Financial and Economic Review, 23*(3), pp. 195–211. https://real.mtak.hu/207994/1/hsz-23-3-szc1-kim-raciborski-vargedo.pdf

Gross exposure	100	
Green Ratio	50%	
Rate of the Discount	7%	
Risk weight	80%	
P2 add-on (above 8%) *without discount*	5%	
Risk-weighted exposure amount (RWA)	HUF 80	= HUF 100 * 0.8
P1 capital requirement	HUF 6.4	= HUF 80 * 0.08
P2 capital requirement *without discount*	HUF 4	= HUF 80 * 0.05
Capital requirement *discount (upper limit)*	HUF 3.5	= HUF 100 * 0.5 * 0.07
P2 capital requirement *with discount*	HUF 0.5	= HUF 4 – HUF 3.5
P1 + P2 capital requirement *without discount*	HUF 10.4	= HUF 6.4 + HUF 4
P1 + P2 capital requirement *with discount*	HUF 6.9	= HUF 6.4 + HUF 0.5

For this transaction, the Pillar 1 capital requirement is 8 percent of the risk-weighted exposure amount (RWA); therefore, capital of HUF 6.4 is required under Pillar 1. For simplicity, assume that the supervisory authority has set a 13-percent SREP capital requirement for the transaction type, consisting of an 8-percent Pillar 1 requirement and a 5-percent Pillar 2 additional (add-on) requirement. Therefore, following the transaction, HUF 4 of additional capital needs to be held under Pillar 2 (HUF 100 × 0.8 × 0.05). This can be reduced by the capital requirement discount, which is calculated as the gross exposure (HUF 100) multiplied by the green ratio (50 percent) and the discount rate (7 percent). Therefore, the discount will be a maximum of HUF 3.5, as it may be further reduced by portfolio-level limits. Therefore, the sum of the Pillar 1 and Pillar 2 capital requirements for the transaction will be HUF 6.9, compared to HUF 10.4 in the absence of the discount.

3. Impact of the capital requirement discount at portfolio level

The calculation of portfolio-level discounts can also be illustrated through an example. Assume that a bank has corporate and retail portfolios of HUF 100,000 and HUF 150,000, respectively, with green exposures accounting for 6 percent and 10 percent of the portfolios, respectively, and the corresponding risk weights being 80 percent and 50 percent for the two segments. Furthermore, assume that the discount rate is 5 percent for corporate green loans and 7 percent for retail green loans, and that the supervisory authority's Pillar 2 additional capital requirements are HUF 3,200 and HUF 750, respectively. It can therefore be seen that the sum of the Pillar 1 and Pillar 2 capital requirements decreases from 12 percent to 11.63 percent for the retail segment and from 9 percent to 8 percent for the corporate segment (expressed as a percentage of RWA). In the case of the retail portfolio, the preferential capital requirement is subject to the limitation that the total capital requirement may not fall below the Pillar 1 requirement. Thus, the related rule becomes an active constraint in this case. For the total loan portfolio, the sum of the Pillar 1 and Pillar 2 requirements amounts to 10.55 percent of RWA without the discount and 9.87 percent of RWA with the discount. As the difference between the two values is less than 1.5 percentage points, the relevant upper limit does not become an active constraint; therefore, 9.87 percent can be considered the final value.

		Forint	
	Corporate loan portfolio		
Corporate	Gross corporate loan portfolio	100,000	
	of which: gross green loan portfolio (6%)	6,000	= 100,000*0.06
	risk-weighted assets (80%)	80,000	= 100,000*0.8
	Discount (5%)	300	= 6,000*0.05
	P1 capital requirement	6,400	= HUF 80,000 * 0.08
	P2 additional capital requirement *without discount*	3,200	
	P1 + P2 capital requirement *without discount*	9,600	= HUF 6,400 + 3,200
	P1 + P2 capital requirement rate *without discount*	12%	=9,600/80,000
	P1 + P2 capital requirement *with discount*	9,300	= 6,400 + max (0;3,200-300)
	P1 + P2 capital requirement rate *with discount*	11.63%	=9,300/80,000
	Retail loan portfolio		
Household	Gross retail loan portfolio	150,000	
	of which: gross green loan portfolio (10%)	15,000	= 150,000*0.1
	Risk-weighted assets (50%)	75,000	= 150,000*0.5
	Discount (7%)	1,050	= 15,000*0.07
	P1 capital requirement	6,000	= 75,000*0.08
	P2 additional capital requirement *without discount*	750	
	P1 + P2 capital requirement *without discount*	6,750	= 6,000 + 750
	P1 + P2 capital requirement rate *without discount*	9%	= 6,750/75,000
	P1 + P2 capital requirement *with discount*	6,000	= 6,000 + max (0;750-1,050)
	P1 + P2 capital requirement rate *with discount*	8%	= 6,000/75,000
	Full portfolio		
Full	P1 + P2 capital requirement *without discount*	16,350	= 9,600 + 6,750
	P1 + P2 capital requirement rate *without discount*	10.55%	= 16,350/ (80,000+75,000)
	P1 + P2 capital requirement *with discount*	15,300	= 9,300 + 6,000
	P1 + P2 capital requirement rate *with discount*	9.87%	= 15,300/ (80,000+75,000)
	Capital requirement discount rate	0.68%	=min (10.55%-9.87%; 1.5%)

In the example calculation, several simplifications were made, such as assuming a uniform discount rate and homogeneous risk weight values.