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The Basel I floor – transitional arrangement and backstop to the capital adequacy framework

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1. Introduction

Capital requirements are intended to ensure that banks have a certain amount of capital to absorb unexpected losses. These requirements take into account the riskiness of banks' various loan exposures. Such risk weighting implies higher capital requirements for riskier exposures, e.g. small business loans, than for safer loans such as residential mortgages with a low loan-to-value ratio.

Under the current framework for banking regulation, Basel II, banks have the option of internally calculating risk weights for their loan exposures. The risk weights are calculated using risk models that must be approved by the supervisory authorities before the banks can apply them. The former framework, Basel I, had a fixed set of risk weights that banks had to use.² Basel II also defines a set of standardised risk weights that banks use when they do not calculate risk weights internally. When banks calculate their own risk weights, the capital requirements can become more risk-sensitive and more consistent with banks' risk management practices and risk pricing. Banks can attain lower capital requirements measured in NOK by calculating risk weights internally.

Basel II was introduced in the European Economic Area (EEA) in 2007. To prevent banks' internal risk weights from reducing risk-weighted assets and thus banks' capital needs too much and too quickly, temporary, lower limits were set for how much capital could be reduced. These limits were set relative to the previous framework, Basel I, which had a fixed set of risk weights. These limits are referred to as the "Basel I floors", or Basel II transitional arrangements, and in this *Commentary* are hereinafter referred to as "the floor". In 2007, the floor was 95 percent of the Basel I requirement. In 2008, the floor was 90 percent and 80 percent in 2009. Although the floor was originally intended to expire at the end of 2009, a floor of 80 percent was retained and continues to apply in Norway and most EU countries. In a press release dated 13 July 2009, the Basel Committee announced that it had agreed to keep the floor in place beyond the end of 2009 without mentioning when it should expire.³

Applying the floor has become more complicated than necessary because it was not uniformly implemented in the EEA. In the Basel Committee's original proposal, the floor is, in reality, a floor for calculating risk-weighted assets. The EU legislation that implemented Basel II in the EEA defined the floor as a minimum level of capital. The two versions do not always produce the same result. This *Commentary* first looks at how differing interpretations of the floor result in country-to-country differences in capital requirements for banks. This is followed by a discussion of alternative backstop mechanisms that have been proposed in connection with the new Basel III framework which is being phased in from 2013 to 2019.

¹ I am grateful to Bjørne-Dyre Syversten, who has prepared the chart, and to Arild Lund for useful comments.

² These weights were roughly 0 percent for loans to public sector entities, 50 percent for loans secured on residential property and 100 percent for corporate loans.

³ No formal EU decision has been made for the floor to continue to apply after 2011. The decisions of the Basel Committee are not legally binding and need to be implemented in national legislation.

2. The Basel Committee and the EU have differing interpretations of the floor

With a view to avoiding a too substantial and too rapid reduction in risk-weighted assets, the Basel Committee defines the floor as a lower limit for risk-weighted assets. Under the current floor limit, the floor is binding on a bank if its own risk-weighted assets are lower than 80 percent of risk-weighted assets measured in accordance with Basel I.⁴ In that case, the bank shall use 80 percent of risk-weighted assets measured in accordance with Basel I as the basis for calculating the capital requirement and capital adequacy figures. Table 1 illustrates this for DNB Bank which is bound by the Basel Committee's version of the floor. Note that the Basel Committee's version does not include how much capital the bank actually has, only its risk-weighted assets. The Basel Committee's version of the floor can thus be binding even if the bank's capital adequacy ratio is high.

The EU has implemented Basel II. But in the EU's current Capital Requirements Directive, the floor is defined as a floor for total regulatory capital – and not for risk-weighted assets. According to the EU version of the Basel I floor, a bank may not have less capital than 80 percent of the minimum under Basel I.⁵ This may be formulated by stating that a bank's capital adequacy ratio may not be lower than 6.4 percent measured under Basel I ($0.8 \times 0.08 = 0.064$). Unlike the Basel Committee's version, the EU version of the floor has no effect on banks with capital adequacy higher than 80 percent of the minimum under Basel I (see Table 1). The EU version of the floor therefore permits a bank with sufficient capital to attain very high capital adequacy by reducing its risk weights.

Table 1 shows that the DNB Bank's capital adequacy ratio is half a percentage point lower because it is bound by the floor for risk-weighted assets, while the floor for total regulatory capital is not binding on DNB Bank. The floor for risk-weighted assets (the Basel Committee version) may thus be binding on a bank even if the floor for total regulatory capital (the EU version) is not. This is the case when a bank has sufficiently low risk weights to be bound by the Basel Committee version of the floor, while the bank's total capital adequacy is higher than 80 percent of the minimum under Basel I. But the converse is not possible. The floor for total regulatory capital is not binding on a bank unless the floor for risk-weighted assets is binding: As long as a bank meets capital requirements calculated using internal risk weights, only by breaching the floor for risk-weighted assets can the bank breach the floor for total regulatory capital.⁶

⁴ See paragraph 45 of *International Convergence of Capital Measurement and Capital Standards* (June 2006), a compilation of the Basel II framework <http://www.bis.org/publ/bcbs128b.pdf>. Some adjustment factors have been ignored here for the sake of simplicity. The definition starts with a floor for capital: The floor will be binding if the floor amount, 80 percent of the required 8 percent total regulatory capital under Basel I, is higher than the required 8 percent total regulatory capital under Basel II: $0.8 \times 0.08 \times \text{Risk-weighted assets under Basel I} > 0.08 \times \text{Risk-weighted assets under Basel II}$. If the floor amount is larger, banks are required to add 12.5 times the difference to risk-weighted assets. (The difference is multiplied by 12.5 to obtain the difference measured in units of risk-weighted assets rather than units of capital). Thus, in reality the definition is a floor for risk-weighted assets: $0.8 \times \text{Risk-weighted assets under Basel I}$.

⁵ See Article 152 of Directive 2006/48/EC. Certain adjustment factors are disregarded here for the sake of simplicity. The floor is binding on a bank if $0.8 \times 0.08 \times \text{Risk-weighted assets under Basel I} > \text{the bank's total regulatory capital}$.

⁶ Of course, a bank must meet the minimum requirement for total regulatory capital measured under Basel II: *the bank's total regulatory capital* $\geq 0.08 \times \text{Risk-weighted assets under Basel II}$. This means that when the EU version of the floor is binding on a bank, $0.8 \times 0.08 \times \text{Risk-weighted assets under Basel I} > \text{the bank's total regulatory capital} \geq 0.08 \times \text{Risk-weighted assets under Basel II}$, also the Basel Committee version of the floor is binding on that bank (see footnotes 4 and 5).

Table 1 The DNB Bank group's capital adequacy as at 31 December 2011. In millions of NOK and percent

	Basel Committee version (floor for risk-weighted assets)	EU version (floor for total regulatory capital)	<i>Calculation</i>
Risk-weighted assets calculated under Basel II using internal risk weights	968 225		
Risk-weighted assets calculated under Basel I	1 273 232		
Basel I floor for risk-weighted assets	1 018 586		$0.8 * 1273232 = 1018586$
Total regulatory capital		116 879	
Basel I floor for total regulatory capital		81 487	$0.08 * 0.8 * 1273232 = 81487$
Is floor binding on the bank?	<i>YES</i>	<i>NO</i>	$968225 < 1018586$ and $116879 > 81487$
Capital adequacy ratio (total regulatory capital)	11.5 %	12.1 %	$116879 / 1018586$ and $116879 / 968225$

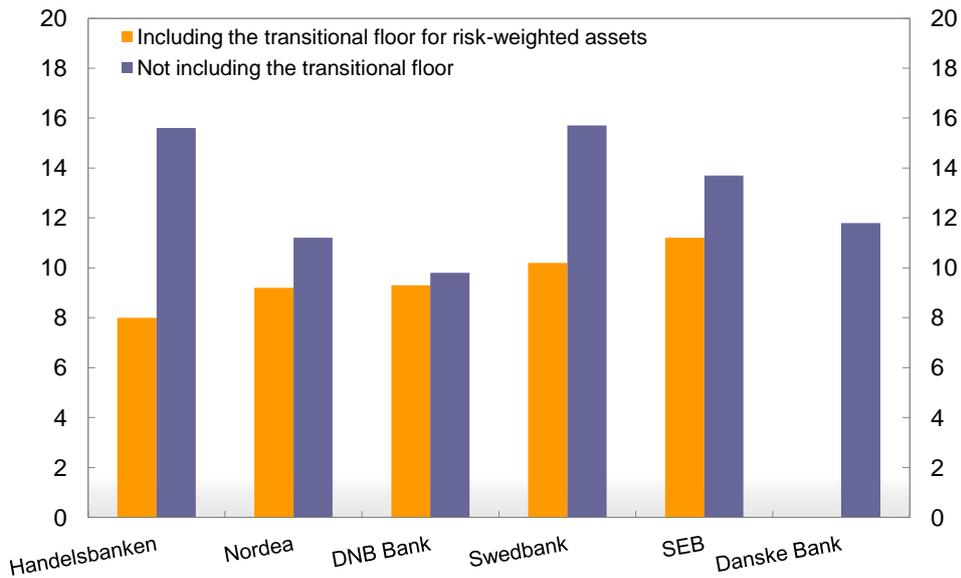
Source: DNB Bank's annual report for 2011

3. Differing interpretations of the floor in the EEA

The EU version of the floor is thus more lenient than Basel II, the international standard on which it is based. But as the floor in the EU directive is a minimum requirement, there is nothing to stop EEA countries from implementing the Basel Committee version, as Finanstilsynet (Financial Supervisory Authority of Norway) has done. Compliance with the Basel Committee version entails a higher degree of international harmonisation, since the members of the Basel Committee are not exclusively from EEA member states. The financial crisis showed that many banks did not have sufficient capital. The Basel Committee version of the floor has stricter standards for bank capital than the EU version. Implementing the Basel Committee version of the floor has thus been advantageous.

Norwegian and Swedish regulators apply a floor for risk-weighted assets. On the other hand, Danish regulators apply a floor for total regulatory capital. Because this floor is not binding on Danske Bank, it only reports a capital adequacy ratio without the floor (see Chart 1). In their quarterly and annual reports, large Swedish banks disclose capital adequacy ratios both with and without the floor. DNB discloses its capital adequacy ratio with the floor only, but the ratio without the floor can be calculated on the basis of additional information in the bank's quarterly and annual reports. The market is obviously better informed when banks report both with and without a floor. Chart 1 shows that the gap between capital adequacy levels with and without the floor for risk-weighted assets varies between the large Nordic banking groups, reflecting differences in their portfolios and methods for calculating risk.

Chart 1 Common Equity Tier 1 ratio for the six largest banking groups in the Nordic region. Percent. As of 31 December 2011



Source: Public financial information from the institutions

In autumn 2011, the European Banking Authority (EBA) prescribed extraordinary requirements to deal with the euro crisis. In addition to capital reserves for losses on sovereign risk exposures, a minimum 9 per cent Common Equity Tier 1 capital ratio is required for the 71 largest banks in the EU (including DNB Bank). The requirement enters into force as from the end of June 2012.

Since the EU version of the Basel I floor has been defined for total regulatory capital, it was not obvious how the 9 percent Common Equity Tier 1 capital ratio requirement would be adapted to current floor requirements. The solution adopted was to allow each EU member state's supervisory authority to choose whether the requirement for their banks should be calculated using a floor for total regulatory capital or using a floor for risk-weighted assets. This results in differences in the capital buffer that fairly similar banks are required to hold. Finanstilsynet decided that the requirement should be calculated using a floor for risk-weighted assets, in line with current Norwegian practice.⁷ Swedish regulators decided that the requirement should be calculated using a floor for total regulatory capital, even though a floor for risk-weighted assets applies for ordinary capital requirements in Sweden.

With a floor for risk-weighted assets, DNB Bank faced a need for approximately NOK 12 billion in recapitalisation to reach the 9 percent Common Equity Tier 1 capital requirement. With a floor for total regulatory capital, which would not have applied to DNB Bank, its need for recapitalisation would have been cut in half. With a floor for risk-weighted assets, the Swedish institution Handelsbanken would have faced a need on the order of NOK 10 billion in recapitalisation.⁸ But since the floor for Handelsbanken was for total regulatory capital, it did not need additional capital.

⁷ Regulators in Austria, Ireland, Italy, Portugal, Spain and the UK also opted for a floor for risk-weighted assets.

⁸ DNB Bank reported NOK 12 billion on 9 December 2011 <https://www.dnb.no/om-oss/investor-relations/borsmeldinger.html#>. At the end of the third quarter of 2011, the DNB Bank group had NOK 79 339 million in Common Equity Tier 1 capital and NOK 94 4791 million in risk-weighted assets without the floor. This yields a Common Equity Tier 1 ratio of 8.4 percent, and a need for NOK 5.7 billion to reach 9 percent. The EBA's press release

4. Alternative backstop mechanisms under Basel III

Basel II will be succeeded by Basel III, to be phased in as from 2013. Basel III retains the system for allowing banks to calculate risk weights internally. The floor has functioned as a backstop against the possibility of serious flaws in banks' risk models and the rules for devising them. Basel III proposes a new backstop from 2018 called the *leverage ratio*. The Basel III leverage ratio is a minimum requirement for banks' capital adequacy measured without risk weights, a measure of a bank's equity ratio. The unweighted nature of the leverage ratio has advantages and disadvantages. The advantage is that the leverage ratio is far easier to compare across banks than capital requirements based on risk weights, especially bank-specific risk weights. The disadvantage is that the leverage ratio is not risk-sensitive, which means banks will not have an incentive to choose low-risk loan exposures when the leverage ratio is binding on them. For the same reason, a comparison of leverage ratios across banks will provide little indication of differences in risk coverage, i.e. whether different capital levels are consistent with different risks.

A risk-sensitive alternative that has been proposed entails retaining the essence of the Basel I floor, but basing it on standardised Basel II (and Basel III) risk weights, rather than on Basel I risk weights. The result will be a floor based on current regulations, which is more risk-sensitive than Basel I. Since the Common Equity Tier 1 capital ratio is the most important capital measure under Basel III, such a "Basel II floor" should apply to Common Equity Tier 1 capital and not only to total regulatory capital.

Normally, backstops such as the floor or leverage ratio should not be binding on banks. It is therefore important that capital requirements based on banks' internal risk models are robust. The Basel Committee and also Nordic ministries of finance have begun an effort to study whether there are disproportionate differences between various banks' models for calculating risk weights. In addition, certain simple calculations indicate a need for capital requirements that are higher than those under Basel III, to prevent the proposed backstops from being binding in normal circumstances (see box).

5. Concluding remarks

Capital adequacy requirements should not be too difficult to understand. And it ought to be possible to compare capital adequacy data across banks, even across banks in different countries. This is important for capital adequacy data to be usable and reliable for banks' customers, equity investors and creditors. At the same time, capital requirements should be risk-based, so that increased risk at a bank raises the bank's capital requirements. This implies that the regulations need to strike a proper balance between simplicity and risk-sensitivity. When Basel II permitted banks to calculate internal risk weights, the risk sensitivity of the framework, but also the complexity, increased. In particular, bank-specific risk weights made it difficult to compare capital adequacy data across banks. The Basel I floor has provided a limit for the permitted reduction in banks' capital due to reduced risk weights at banks. But the Basel I floor has not functioned as a simple and comparable counterweight to complex bank-specific calculations of capital adequacy. An important reason is differences in the way the Basel I floor is implemented across countries.

Basel III, which will be phased in from 2013, will continue to allow banks to calculate internal risk weights for their assets. As a result, the capital adequacy regulations will still be vulnerable to weaknesses in banks' model calculations and the rules for the models. The Basel Committee as well as Nordic ministries of finance have started work to determine whether there are disproportionate differences in the way banks calculate risk weights. Norges Bank supports this work.⁹ In addition, there should at all times be backstops, for example the Basel I floor or leverage ratio, that prevent capital levels from becoming too low at banks that use their own systems for calculating risk weights for their assets.

Calibrating proposed backstops and capital requirements based on banks' risk weights

The proposed Basel III leverage ratio requirement is 3 percent of the unweighted Tier 1 ratio. By comparison, US banks have for many years been subject to an unweighted Tier 1 capital ratio requirement of 4-5 percent. If the Basel III leverage ratio is binding on a bank, it needs to hold NOK 3 in Tier 1 capital for each NOK 100 of residential mortgage exposure in the next residential mortgage loan the bank extends.¹⁰ With an average risk weight on residential mortgages of 15 percent, the risk-weighted Tier 1 capital ratio requirement needs to be 20 percent for there to be NOK 3 in risk-weighted Tier 1 capital for each additional NOK 100 in residential mortgage exposure ($3/(100*0.15)=0.2$). By comparison, the new risk-weighted Tier 1 capital requirement under Basel III is 8.5 percent, including the fixed capital buffer requirement. Five of the six largest Nordic banking groups have an average risk weight on residential mortgage loans below 15 percent (see *Economic Commentary* 9/2012). If, instead, the Basel III requirement of 8.5 percent is kept unchanged, the average risk weight for residential mortgages needs to be approximately 35 percent for NOK 100 in residential mortgage exposure to require NOK 3 in Tier 1 capital ($3/(100*0.085)=0.35$). 35 percent is precisely the standardised risk weight for the safest residential mortgage exposures under Basel II and Basel III. A proposed alternative to the leverage ratio, a "Basel II floor" based on standardised risk weights under Basel III, with the current 80 percent floor limit, corresponds to a risk weight for residential mortgage exposures of 28 percent ($0.8*35=28$). This will require approximately NOK 2.5 in Tier 1 capital for NOK 100 in residential mortgage exposure ($100*0.28*0.085=2.38$).

The leverage ratio and "Basel II floor" are intended to be capital backstops for the bank as a whole and not at portfolio level. For that reason it is not fundamentally wrong for a bank to operate with risk weights that result in lower capital requirements at portfolio level than the backstops do when they are binding on the bank. But since a backstop should not normally be binding on a bank, excessively large portions of a bank's assets may not be subject to capital requirements substantially below the requirements that apply when the backstop is binding on the bank.

⁹ See *Financial Stability* 1/2012

¹⁰ The Basel III leverage ratio takes into account off-balance-sheet exposures, unlike the US leverage ratio requirement, which means that, for a given percentage rate, the US requirement is milder than the Basel III requirement. If the requirement of unweighted Tier 1 capital ratio is binding, the scale of off-balance-sheet items will be irrelevant for the capital requirement for a new residential mortgage loan (kept on the bank's balance sheet). In that situation, the Basel III leverage ratio requirement will be milder because the percentage rate is lower. The Basel III leverage ratio requires more capital than the capital requirement based on the bank's risk weights for residential mortgage exposures. For new loans where the risk-weighted requirement is higher than the requirement under the leverage ratio, the risk-weighted requirement will be binding on the bank. Note that the Basel III leverage ratio applies to the entire bank and not to each individual loan, but if the leverage ratio is binding on a bank and the bank extends one more residential mortgage and no other loans, the leverage ratio will, in practice, apply to this residential mortgage as well.