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## Leverage ratio requirement for Swedish banks

### Summary

Finansinspektionen (Swedish Financial Supervisory Authority – FI) considers that a leverage ratio requirement may serve an important function for preserving financial stability in Sweden as a back-stop that sets a floor for how low the capital requirement can fall in relation to the banks' gross assets. However, the disadvantages of a leverage ratio requirement mean that it should not be introduced at a level that is so high that it takes effect as the main capital restriction instead of the risk-weighted capital adequacy requirement.

FI's policy can be summarised as follows:

- There are insufficient grounds to implement a leverage ratio requirement for Swedish banks before the requirement enters into force within the EU, which is expected to take place in 2018.
- Given the current situation, Sweden should not introduce a leverage ratio requirement that is higher than in the rest of the EU.
- Assuming that the level of the requirement does not exceed three per cent, Sweden should work to ensure that the EU's regulation permits FI and other national competent authorities to require that the leverage ratio requirement is to be primarily met by Common Equity Tier 1 capital.
- The leverage ratio requirement should cover all entities encompassed by the current requirement for reporting and public disclosure of the leverage ratio under the EU's Capital Requirement Regulation. However, an in-depth analysis needs to be conducted of the impact that a requirement would have on those banks that mainly lend to central governments, municipal authorities and county councils.
- Sweden should work to ensure that there is flexibility in the EU regulation for FI and other national supervisory authorities to allow the leverage ratio requirement to be satisfied at a consolidated level only.

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# 1 Introduction

## 1.1 Purpose

At a meeting of the Stability Council on 23 May 2014, the Council assigned its working committee to analyse the need to bring forward the introduction of a leverage ratio requirement for banks in Sweden. This memorandum describes the contribution to the analysis made by Finansinspektionen (Swedish Financial Supervisory Authority – FI). FI reported its analysis and position at a meeting of the Council on 11 November 2014.<sup>1</sup>

This memorandum describes FI's views on a binding leverage ratio requirement for banks, credit institutions and investment firms. This view is based on an analysis of the pros and cons of a leverage ratio requirement in respect of financial stability. The analysis also covers how the requirement affects different kinds of bank and other firms covered by the capital adequacy framework. The term 'banks' is used in this memorandum as an overall term for all firms encompassed by the capital adequacy framework.

The analysis answers questions about: whether there are grounds for Sweden to introduce a leverage ratio requirement prior to its date of introduction through EU legislation; and whether there are grounds for Sweden to introduce a more stringent requirement than in the EU. There is also a discussion about the kinds of firm that should be subject to the requirement. Finally, FI's position on whether a minimum leverage ratio requirement ought to be supplemented with a buffer requirement is also reported.

The memorandum does not include any standpoints that affect FI's practice or the like and for this reason is not being circulated for consultation.

## 1.2 Background

The Basel Committee on Banking Supervision ('the Basel Committee') presented the 'Basel III agreement' in December 2010.<sup>2</sup> The new rules contained in this agreement were the result of international efforts to attempt to overcome the weaknesses in the financial frameworks demonstrated during the last financial crisis.

The Basel III agreement included a three-per-cent leverage ratio requirement for banks. The Committee published an updated definition of the leverage ratio in January 2014.<sup>3</sup> In conjunction with this, the Committee also stated that the final calibration (i.e. the determination of the actual level of the requirement) and any further adjustments of the definition should have been finalised no later than by 2017, so that a leverage ratio requirement can be introduced on 1 January 2018.

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<sup>1</sup> See minutes from the meeting at <http://www.regeringen.se/sb/d/18209/a/250363>

<sup>2</sup> *Basel III: A global regulatory framework for more resilient banks and banking systems*, Basel Committee on Banking Supervision. See [http://www.bis.org/publ/bcbs189\\_dec2010.htm](http://www.bis.org/publ/bcbs189_dec2010.htm)

<sup>3</sup> *Basel III leverage ratio framework and disclosure requirements*, Basel Committee on Banking Supervision, January 2014. See <http://www.bis.org/publ/bcbs270.htm>

### 1.3 Legal basis

It is stated in the Capital Requirements Regulation<sup>4</sup> that the European Commission should submit a report concerning a leverage ratio requirement to the European Parliament and the Council of the European Union ('the Council') by no later than 31 December 2016. If necessary the report should be accompanied by a legislative proposal. The Capital Requirements Regulation already includes a requirement for banks to report their leverage ratio and also, from and including 2015, to publicly disclose these ratios.

It is indicated by the Capital Requirements Regulation that Member States should be able to apply their own rules in this area until such time as any leverage ratio requirement has been harmonised in 2018. FI considers that FI should be able to issue regulations on a leverage ratio requirement within the framework of existing legal authorisations. See Appendix 2 for a more exhaustive description of the legal basis.

### 1.4 Description of the leverage ratio

As its name suggests, the leverage ratio is a measure of solvency. Solvency indicates the proportion of a firm's assets used to finance its equity. However, the leverage ratio differs from the usual measure of solvency in two important respects. Firstly, the assets in some cases are entered at different amounts than those in the accounts; these amounts are referred to as 'exposure amounts'. Commitments that are not entered in the balance sheet in the accounts are also included in the total amount of exposures. Secondly, the ratio is expressed in terms of Tier 1 capital (according to the leverage ratio definition used by the Basel Committee and the Capital Requirements Regulation) rather than in terms of equity.

$$\text{Leverage ratio} = \frac{\text{Tier 1 capital}}{\text{Total exposure amount}}$$

The main difference compared with the capital adequacy requirement is that the assets are not 'risk-weighted', which means that the banks must hold at least as much capital for all exposures irrespective of the exposures' risk. According to the risk-weighted capital adequacy requirement, the risk weights and thereby the capital requirement vary depending on the assessed risk level of the assets. See Appendix 1 for a further description of the structure of the leverage ratio and the differences between this ratio, the usual measure of solvency and the risk-weighted capital adequacy ratio.

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<sup>4</sup> Regulation (EU) No 575/2013 of the European Parliament and of the Council of 26 June 2013 on prudential requirements for credit institutions and investment firms and amending Regulation (EU) No 648/2012.

## 2 The purpose of a leverage ratio requirement

### 2.1 Introduction and summary analysis

As shown in Sub-section 1.4, the crucial difference between the capital adequacy requirement and the leverage ratio requirement is that the capital adequacy requirement is risk-sensitive. This means that the capital requirement for the individual exposure may vary according to the risk level of the exposure. This risk level is expressed through a ‘risk weight’. A leverage ratio requirement imposes the same capital requirements on all exposures, irrespective of risk.

FI considers that there are weaknesses in the risk-weighted capital adequacy framework, which means that the framework may underestimate the banks’ actual risk level and thereby their capital requirement. The leverage ratio may help to deal with this problem. Firstly, there are risks of measurement errors in the risk-weighted capital adequacy framework. No method will ever be able to provide a correct measure of each asset’s risk in every situation. Secondly, there is an incentive problem, which means that the banks are using various measures to attempt to reduce their capital requirements without reducing the risk in their assets. This memorandum calls this phenomenon ‘capital requirement minimisation’. Finally, the complexity of the risk-weighted capital requirement means that it may be difficult to interpret what the capital adequacy is really telling us about the banks’ risks. This reasoning is explained in more detail in Sub-sections 2.2 to 2.4.

### 2.2 Risk of measurement error

No method for determining risk weights for assets – either a standardised approach or an internal model – will completely accurately reflect the actual risk of each individual asset in all situations. Defects in the methods may result in an underestimation of the risk, and consequently the capital requirement.

The consequences of such a measurement error may be aggravated by the banks’ objective to maximise return on equity. Assets that require far too little capital according to the risk-weighted capital requirement become more attractive to hold when the return on such assets is high in relation to the capital requirement. The high return on equity generated by these assets may result in the banks being tempted to increase their holding of such assets. As the risk weights are far too low, the increase in such assets will not be matched by a sufficient increase in the capital requirement to cover the real risk; major risks can thereby accumulate within the financial system. One example of such a problem is the large number of central government bonds that certain European banks hold from countries with rather low credit-worthiness and consequently relatively low credit ratings.<sup>5</sup>

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<sup>5</sup> Exposures to central governments may receive a risk weight as low as zero in the standardised approach, which may establish a significant difference between the actual risk and the capital requirement. However, it should be noted that the risk weight will never be zero if the banks use an internal model for exposures to central governments.

This fundamental incentive problem also exists in respect of the leverage ratio; see also Section 3. However, the risk-sensitive capital requirement may make matters worse for specific asset classes because the capital requirements in this framework for certain assets may become significantly lower than with a leverage ratio requirement, and might thereby accentuate the problem.

### **2.3 Incentives for and examples of capital requirement minimisation**

The objective of commercial banks is to achieve a high return in relation to the size of their equity. One way is to increase the return on assets, another is to reduce their equity. Bearing in mind the pressure that equity markets exercise on banks listed on the stock exchange, such banks have obvious incentives to maximise the potential of the framework to reduce their equity. This results in the banks endeavouring to reduce their risk-weighted assets and thereby their capital requirement. This fundamental incentive problem is also discussed in more detail in Section 3. ‘Risk weight optimisation projects’ have been launched by the management at several of the major banks in recent years to reduce the risk-weighted assets in various ways in order to increase the scope for dividends and thereby satisfy the equity market.

FI can conclude through its supervision and dialogue with the banks that capital requirement minimisation is on-going at all levels of the banks’ organisations and through several different channels. The senior management of a bank sets the tone, signalling to all levels of the organisation that prioritisation is to be given to capital requirement minimisation. FI considers that there will eventually be a risk of such a signal weakening the prevailing traditional credit culture, which requires that credit assessments must always be effected prudently. There is a risk that the extensive control structures within the banks will decline in status at the expense of the profit-generating business units. Such a business culture may mean that sufficient caution is not always observed when rating individual counterparties, which forms the basis of the capital requirement for credit risk under the internal models. FI has in the course of its supervision seen tendencies that this is already happening today to some extent.

Capital requirement minimisation also means that the banks improve their data quality by, for example, ensuring that all of the various risk-reducing measures, such as collateral and guarantees, are correctly registered in systems and included in the capital requirement calculation, thereby reducing the capital requirement. Another way of reducing the capital requirement is to structure credit agreements so that they are adapted to make maximum use of the opportunities permitted under the framework in respect of capital requirement reduction. This may, for example, apply to the term of the contracts, cancellation rights, netting, collateral and guarantees. These measures are not harmful. On the contrary, the rationale behind the introduction of internal models included encouraging banks to improve their risk management, among other things through these kinds of measure. Indeed it is good that the quality of the bank’s data is sound, and a new structure for credit contracts often leads to an actual reduction of the loss risk. However, it may be problematic if FI has granted permission for use of an internal model based on the knowledge that

this involves a certain level of risk weight, in line with FI's view of the risk, but it subsequently transpires that the credit portfolios in question are ultimately attributed a lower risk weight.

Replacing the risk-weighted capital requirement with a leverage ratio requirement will not remove the pressure on banks to minimise the capital requirement. This pressure (which derives from a fundamental incentive problem as described in Section 3) would remain the same as it is today. However when banks use internal models, where the capital requirement is affected by a large number of different factors, there are more opportunities for the banks themselves to influence the capital requirement in respect of a given portfolio than there are in conjunction with the less complex leverage ratio requirement.

## 2.4 Complexity

As risk measurement methods have developed, the objective of the rules – that risk weights must reflect the actual risk of the assets as accurately as possible – has resulted in the framework for calculating the risk-weighted assets becoming increasingly complex. The growing complexity of this framework is also a result of the increasing complexity of the assets held by the banks, which may be exemplified by both derivative contracts and securitised assets.

Few people have a detailed understanding and knowledge of all of the different calculations required to estimate a major bank's capital adequacy. This may in itself entail risks. Firstly, the resources of both the banks' control functions and the supervisory authorities may be absorbed to an increasingly great extent by them having to acquire competence relating to, and also having to comply with/oversee, the complicated calculation rules. Secondly, focusing on complicated detailed rules may result in both the banks' control functions and the supervisory authorities becoming embroiled in the details and thereby overlooking the major and really significant risks.

Andrew Haldane at the Bank of England highlighted the problem of the increased complexity of the capital adequacy framework in a much discussed speech.<sup>6</sup> His position in summary is that the risks of a complex finance market are not managed by an even more complex framework but instead by keeping the countermeasures simple ("you do not fight fire with fire"). He stated in the speech that research suggests that people deal with complex problems more effectively by using simple rules of thumb rather than complex decision models.

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<sup>6</sup> *The dog and the frisbee*. Speech written by Andrew G Haldane and Vasileios Madouros, Bank of England. Speech presented at the Federal Reserve Bank of Kansas City's 36<sup>th</sup> Economic Policy Symposium, The Changing Policy Landscape, Jackson Hole, Wyoming on 31 August 2012

### **3 The incentive problem with the leverage ratio requirement**

#### **3.1 Introduction and background**

The conclusion drawn in the previous section was that there are weaknesses in the risk-weighted capital adequacy framework which mean that the framework may underestimate the banks' real level of risk and thereby capital requirement and also that the leverage ratio may help to limit these problems. However, the leverage ratio requirement is not free from problems.

The rationale behind a risk-sensitive capital requirement is that it increases the incentive for banks to take due payment for the risk and avoids those transactions where the return does not correspond to the level of risk. Through the capital requirement reflecting the real level of risk, risk capital may also be allocated to those parts of the economy where it is most useful. All in all, this may be deemed to increase the efficiency of the economy, and thereby the public benefit, in addition to supporting financial stability.

The European Commission considers that the leverage ratio should neither be designed nor calibrated as the overall leading capital requirement because it would encourage moving away from low risk (weighted) business and possibly leading to improper risk-pricing for loans and other financial products.<sup>7</sup>

#### **3.2 Overall assessment**

FI's assessment can be summarised as follows:

The banks will have a strong incentive to increase the risk level of their assets if the capital requirement framework does not mean that the capital requirement is higher for a bank that takes higher risks. This is due firstly to it being the legislator's imperative and not the market that governs how much equity the banks hold and secondly that the banks are not penalised by the market (at least not fully) if the risk level of their assets increases. Furthermore, the capital requirement framework that binds the bank in aggregate terms will be the framework that governs the business decisions made by the bank. The fact that the incentive structure for the regulatory capital requirement is of great importance for the banks' individual business decisions is also evidenced by how the banks have structured their business management systems in practice.

All this means that if the regulator wants to avoid banks having an incentive to increase the risk level of their assets, then the regulator should not introduce a non-risk-sensitive capital requirement at such a high level that it is this capital requirement, instead of the risk-sensitive capital requirement, that constitutes the binding capital restriction for the banks in aggregate terms. This reasoning is described in more detail in Sub-sections 3.3 to 3.6.

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<sup>7</sup> Commission Delegated Regulation (EU) No C(2014) 7237 of 10 October 2014 amending Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to the leverage ratio.



### 3.3 The banks' fundamental incentive structure

The objective of commercial banks is to give shareholders a good return on their investment, that is, to achieve a high return on equity (ROE). The return on credit transactions can be summarised simply in the following equation:

$$ROE = \frac{\text{Interest income} - \text{borrowing cost} - \text{credit losses} - \text{other expenses}}{\text{Equity}}$$

We can see from the equation that the amount of equity held by the bank represents a key factor for whether the bank achieves its objective.

However, economic theory tells us that the borrowing cost of other financing will rise when the proportion of their financing provided by equity reduces and that the senior bank management therefore has no incentive to reduce equity. The problem is that this reasoning is not completely valid in reality – particularly with regard to banks. There are three main reasons for this.<sup>8</sup>

Firstly, the default of a systemically important bank means that the real economy as a whole may be damaged owing to disruptions to payment systems and in the credit market. The costs to society of a bank's bankruptcy thus become significantly greater than just those costs that affect the bank's owners and other financiers.

Secondly, the central government's explicit<sup>9</sup> and implicit guarantees mean that those depositors and debt investors that lend to the bank accept that the bank has a lower proportion of equity than would otherwise be the case. Indeed, they consider that the central government will compensate them in the event of any losses and consequently do not require full compensation in the form of higher interest rates if the bank reduces its equity. However, the central government's implicit guarantees may be expected to reduce as of the impending introduction of the new resolution directive.<sup>10</sup>

Finally, the banks themselves have a great information advantage in relation to depositors and debt investors. It is simply very difficult for the latter to assess the level of a bank's risk and thereby how much equity would be required for a depositor's and investor's risk to attain a level that is acceptable to them.

All in all, this means that what society considers to be sufficiently large equity and what the banks themselves consider to be sufficient are not the same. If the banks (and market) were allowed to make their own choices, they would hold

<sup>8</sup> A fourth important reason for why economic theory is not fully applicable are the different taxation for debt and equity. However, this applies to all firms, not just banks.

<sup>9</sup> One example of an explicit government guarantee is the deposit guarantee scheme.

<sup>10</sup> Directive 2014/59/EU of the European Parliament and of the Council of 15 May 2014 establishing a framework for the recovery and resolution of credit institutions and investment firms and amending Council Directive 82/891/EEC and Directives 2001/24/EC, 2002/47/EC, 2004/25/EC, 2005/56/EC, 2007/36/EC, 2011/35/EU, 2012/30/EU and 2013/36/EU and (EU) No 1093/2010 and (EU) No 648/2012 of the European Parliament and of the Council (EUT L 173/190, 12.6.2014).

equity that is lower than what is best from the perspective of the economy as a whole. The legislator consequently needs to impose a requirement on the banks to hold a higher proportion of equity than the market requires them to hold. The conclusion from this is that **it is mainly the legislator and not the market forces that govern the proportion of equity in the banks.**

The capital framework itself may also affect the market's incentives as it means that the shareholders may lose control over the bank before its equity has been wiped out. Consequently, an increase in the banks' equity does not necessarily reduce the shareholders' risk level – and thereby the required return on equity – to a corresponding extent if the increase in capital is due to an increase in the minimum capital requirement.

It may be concluded in summary that the banks have an incentive to minimise their equity within the boundaries of the law in order to achieve their objective of maximising their return on equity because the market does not penalise the banks through higher interest rates if the proportion of equity falls (or at least not fully).

Economic theory states that the higher the risk associated with an exposure, the higher the return required by the market to take on this exposure. In other words, the higher the risk of the credit, the higher the payment the bank can require for providing the credit. There is a direct link between credit losses and interest income, as the interest income must cover the *expected* (average) credit losses to enable the bank to make a profit on its lending. The banks themselves therefore have clear incentives of their own not to grant credit where the interest income does not cover both the expected credit losses and other costs. However, another aspect of the risk is the *unexpected* (higher than average) losses. The amount of their equity in a functioning market needs to be adjusted so that it is large enough to adequately cover unexpected losses in those years when they arise, as the revenues for these years will not be sufficient to cover costs. The reason for this is that all losses that exceed the interest income and equity hit those lending to the bank, that is, the bank's depositors and debt investors. If the equity is too low and there is consequently insufficient protection, they will require compensation for this in the form of higher interest rates. However, for the reasons described above – the central government's guarantees and the depositors' and investors' information disadvantage – there is no clear link between the bank's risk level and the bank's borrowing costs.

The conclusion is that **as the market does not fully penalise the banks if the risk level of their assets increases, the bank has an incentive to increase the risk level and thereby increase the return on its assets.**

Owing to the incentive problem described here, a capital adequacy framework must compensate for the banks' borrowing costs not increasing to a corresponding extent if their risk level increases and their equity reduces. If this does not happen, the banks have an incentive to both minimise their equity and increase the risk of their assets within the boundaries of the law.

### 3.4 The importance of which requirements are binding at a total level

The business decision for each new credit will be determined by the bank's potential return on equity for that particular credit, that is, the *marginal return*. The decisive factor for how much total equity the bank must have will also be the same factor that determines the marginal increase in equity for each new business decision. It will thus be an important guiding factor for the marginal return on equity and hence for the business decision as a whole. This is important to note as it will thus be irrelevant if the capital requirement according to factor A is greater for an individual credit than according to factor B where factor B is the factor governing the total capital requirement. In this case, it will consequently still be the capital requirement according to factor B that governs the marginal return. We can draw the following conclusion from this: **it is the factor that determines in aggregate terms how much equity the banks hold that also governs each individual business decision.**

This conclusion is crucial to an understanding of how the banks' leverage ratio requirement interacts with a risk-sensitive capital requirement. The risk-sensitive capital requirement will impose a higher capital requirement for a risky credit exposure than the leverage ratio requirement. However, this higher capital requirement will be irrelevant for the bank as long as it is the leverage ratio requirement that is binding at a total level. The risk-sensitive capital requirement will only affect the bank's business decisions if the bank raises the risk level in its total assets so much that the risk-sensitive capital requirement exceeds the total capital adequacy requirement.

A binding leverage ratio requirement in aggregate terms will thus mean that the risk-sensitive capital requirements are rendered completely ineffective until the risks in the total assets have increased to a sufficient extent. The meaning of 'sufficient extent' is determined by the level at which the leverage ratio requirement is set in relation to the risk-sensitive capital requirement for the individual bank.

### 3.5 Practical implications for the banks' business management

It is interesting to study how the banks' control their risk in practice to understand the impact that the above-mentioned incentive problems could have on the banks' business decisions. Swedish banks that use internal rating methods, which comprise more than 90 per cent of the credit market, have developed internal pricing support and profitability calculation systems that measure the risk-adjusted profitability down to exposure level. The banks thus largely exercise control on the basis of what is referred to in industry terms as the 'risk-adjusted return on regulatory capital' (RARRC). Based on how the banks have set up their business management in practical terms, there are thus also strong reasons to believe that the banks act and will continue to act to maximise the risk-adjusted return for the legally determined equity requirement and that the legal capital requirement is therefore an important factor for the banks' business decisions.

### **3.6 The reliability of the risk weights**

In recent times, criticism has been voiced regarding the reliability of the risk weights calculated using internal models. As shown in Section 2, FI partly agrees with this criticism. FI's assessment is that there are problems with the risk weights according to the internal models. FI considers that, although the problems are not insignificant, they are still limited enough for the risk weights to nonetheless basically mean that the capital adequacy framework requires more capital for higher risks. The incentive structure that the risk-weighted capital adequacy framework is designed to create thereby exists. The conclusion drawn by FI regarding this is that the existing reliability problems in respect of the risk weights are best dealt with within the framework of the risk-weighted capital adequacy framework, not by completely phasing out the use of risk weights and internal models.

See Appendix 3 for a more detailed description of FI's view on the reliability of the risk weights.

## **4 Possible effects on the behaviour of banks**

As stated, a leverage ratio requirement gives the banks an incentive to increase the risk level in their assets. There are a number of concrete measures that the Swedish banks may consider taking in order to do this. The issue most discussed in this context is the securitisation of Swedish mortgages. Other measures that could potentially be considered are banks reducing their exposures to governments. The Swedish banks' exposures to what are regarded as 'sovereign risks' comprise of, for example, holdings of central government bonds, deposits of surplus liquidity with central banks and loans to Swedish municipal authorities and county councils. Other exposures for which the leverage ratio requirement involves a significantly higher capital requirement than the risk-weighted capital adequacy requirement are holdings of covered bonds. The banks hold low-risk assets, such as government bonds and covered bonds, in their liquidity buffers. A leverage ratio requirement as a binding capital restriction thus gives the banks the incentive to reduce these buffers as long as this is permitted within the liquidity framework.

Each individual exposure is given an individual risk weight under the internal models. A large number of exposures are consequently attributed a significantly lower capital requirement according to the risk-weighted capital adequacy framework within exposure classes for which the average risk weight involves a higher capital requirement than the leverage ratio requirement. The banks' internal risk-adjusted profitability calculation systems currently give account managers an incentive to increase credit exposure in relation to low-risk customers and reduce it in relation to high-risk customers. The introduction of a leverage ratio as the binding capital restriction would entail counter-incentives for individual bank branches and account managers, which in time may result in a significant deterioration of asset quality within all lending segments.

In summary this means that both the quality of the banks' assets generally and the banks' fundamental business models may eventually be affected. This may have significant and opaque effects on both financial stability and the efficiency and general function of the finance markets. See Appendix 4 for a more detailed description of the potential effects on banks' behaviour.

## **5 Alternatives to the introduction of a leverage ratio requirement**

A description is provided in Section 2 of how the leverage ratio requirement can help to limit the existing problems within the risk-weighted capital adequacy framework as regards the risk of measurement errors, incentives for capital minimisation and complexity. FI has conducted a review of whether there are alternatives to the leverage ratio requirement that would limit these problems.

The capital adequacy framework functions in a clearly different way if the bank uses an internal model to calculate the risk weights as opposed to using a standardised approach. Those banks in Sweden that use an internal model to calculate the capital requirement for credit risks have a market share in the credit market (the part that comprises firms under supervision) of over 90 per cent. The risk-weighted capital adequacy requirement on the part of Sweden should thus be mainly evaluated on the basis of how the framework functions when the banks use internal models. It is therefore relevant to evaluate a wider application of the standardised approach as an alternative to introducing a leverage ratio requirement. For Swedish banks, the capital requirement for credit risks comprises almost 90 per cent of the total capital requirement. FI's analysis of how the leverage ratio requirement interacts with the risk-weighted capital requirement thus focuses on the credit assets of firms. This analysis is provided in Appendix 5.

The conclusion drawn by FI from the overall assessment of the various alternatives is that they do not constitute adequate alternatives to the introduction of a leverage ratio as a back-stop. However, the existence of the Basel I floor, which applies up to and including 2017 for those banks using internal models for credit risk, support FI's assessment that there is insufficient reason to bring forward the introduction of the leverage ratio requirement for Swedish banks.

## 6 Conclusions from academic literature

FI has conducted a review of the rather extensive academic literature relating to the leverage ratio. The overall conclusion that FI feels able to draw from these studies is the need to balance both risk-weighted and non-risk-weighted capital measures.

There are several studies of how well the leverage ratio can explain the risk of a bank default in relation to other measures of the capital strength of banks, primarily risk-weighted capital measures. A number of studies<sup>11</sup> have empirically demonstrated that simple measures of capital strength have historically proven to predict bank defaults as well as or better than more complex risk-weighted capital measures. However, the main empirism on which these studies are based comprises the capital adequacy ratio according to Basel I. (Nor does the definition of the leverage ratio correspond with the latest definition from the Basel Committee and the EU.) As described in Appendix 5, simple standard approaches such as Basel I have in certain respects characteristics similar to the leverage ratio, and are thus not as risk sensitive as the current capital adequacy ratio. Furthermore, the way in which Basel I dealt with structured credit products such as, for example, securitised assets, which were of great significance in the last financial crisis, was extremely poor. It should also be borne in mind that banks adapt their business models to the prevailing situation, and the fact that simple measures of solvency functioned relatively well in previous crises does not mean that they will function in the same way in the future, should a leverage ratio requirement be introduced as a binding restriction. All in all this means that it is unsafe to rely exclusively on the conclusions from these studies in a forward-looking perspective.

Several studies also indicate that a limitation of the level of solvency at banks may improve financial stability as it may mean that banks do not have to adapt as much to cyclical fluctuations.<sup>12</sup>

A number of studies highlight the disadvantages of the leverage ratio; it is primarily claimed that the ratio appears to give banks an incentive to increase the risk in their assets if the ratio comprises a binding capital restriction.<sup>13</sup> This effect is most marked for those banks that have had a business model characterised from the onset by low risk and hence penalised the most by a non-risk-sensitive capital requirement.<sup>14</sup> FI notes that Swedish banks can generally be said to belong to this category. One study<sup>15</sup> found that the leverage ratio was an inferior measure for predicting bank defaults compared to the risk-weighted capital measures in the United States. The authors speculate on

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<sup>11</sup> Aikman *et al*, 2014; Blundell-Wignall *et al*, 2013; Brealey *et al*, 2011; Gigerenzer & Brighton, 2009; Haldane & Madouros, 2012; Haldane, 2013; IMF, 2009; Mayes & Stremmel, 2012.

<sup>12</sup> As noted by D'Hulster, 2011; Heid, 2007; Hoenig, 2013; Kapan & Minoiu, 2013; Wierst & Dujim, 2014.

<sup>13</sup> D'Hulster, 2011; Gordy, 2003; Hoenig 2013; Kiema & Jokivuolle, 2014; Kim & Santomero, 1988; Lautenschläger, 2013).

<sup>14</sup> D'Hulster, 2011; Kiema & Jokivuolle, 2014; Lautenschläger, 2013.

<sup>15</sup> Haldane and Madouros, 2012

whether this may be due to the United States having had a binding solvency requirement in place since 1981. However, some older studies refute this.<sup>16</sup> A couple of studies conclude that the risk-weighted capital adequacy ratio may be preferable owing to its better incentive structure.<sup>17</sup> There are also studies<sup>18</sup> that show that countries that introduced incentives for the private sector to monitor their risks well coped better with the crisis than others.

It should be noted in particular that several writers state that a leverage ratio requirement should be able to function well as a supplement to a risk-weighted capital requirement.<sup>19</sup> Most propose that the leverage ratio requirement should be calibrated so that the level lies just below the risk-weighted capital requirement in order to prevent the leverage ratio requirement becoming the binding capital restriction and consequently entailing an incentive for the banks to increase their risks.<sup>20</sup>

## 7 Appropriate design for a leverage ratio requirement

### 7.1 Introduction

The conclusion was drawn in the previous section of this memorandum that the simplified design of the leverage ratio makes it inappropriate to function as a main capital restriction for the banks. However, it was also possible to conclude that the leverage ratio is appropriate for limiting several of the disadvantages built into the risk-weighted capital adequacy ratio. This leads to the conclusion that a leverage ratio requirement should serve as a back-stop for the risk-weighted capital adequacy ratio. The issue then becomes the best way of devising the leverage ratio requirement so that it is the most effective back-stop possible. The areas touched on by this issue are the calibration of the requirement (requirement level), the type of capital to which the requirement is to apply, whether the measure should be in the form of a minimum requirement or a buffer requirement, and which firms are to be covered by the measure.

The Swedish design should be discussed on the basis of the regulation expected from the EU, which is planned to enter into force in 2018. As the planned entry into force within the EU lies a number of years ahead, FI needs to adopt a position on whether there is reason for Sweden to introduce a binding measure before the European framework is in place, or whether it would be most appropriate to wait and see the design of the European framework. When the EU framework is in place we will also know whether any possibilities have been included for national options and, if so, what these are.

<sup>16</sup> Furlong, 1988, Sheldon 1996

<sup>17</sup> Gennotte & Pyle, 1991; Morris & Shin 2008

<sup>18</sup> Cihak *et al.*, 2012

<sup>19</sup> Aikman *et al.*, 2014; D'Hulster, 2011; Estrella *et al.*, 2010; Kahane, 1977; Kiema & Jokivuolle, 2014; Lautenschläger, 2013; Wierst & Dujim, 2014

<sup>20</sup> This reasoning also forms the basis of the proposal for a leverage ratio requirement made by the Financial Policy Committee in the United Kingdom. See page 16 of *The Financial Policy Committee's review of the leverage ratio*, Bank of England, October 2014.

<http://www.bankofengland.co.uk/financialstability/Pages/fpc/fscp.aspx>

However, Swedish public authorities should not take the outcome of the forthcoming European regulation for granted. The conclusions from the analysis contained in this memorandum can therefore form the basis for FI's input to the Swedish Government's line of approach in the forthcoming Council negotiations in this area.

## 7.2 Type of capital

The risk-weighted capital adequacy measure imposes a requirement on banks to hold a certain proportion of Common Equity Tier 1 capital in relation to risk-weighted assets. According to the Swedish implementation, the major banks must hold 12 per cent Common Equity Tier 1 capital (4.5 per cent in minimum capital requirement, 2.5 per cent in the capital conservation buffer and 5 per cent in systemic risk supplement, of which 3 per cent in systemic risk buffer and 2 per cent in Pillar 2 basic requirement). In addition, there is also the countercyclical capital buffer, which varies over time. Furthermore, there is a minimum capital requirement of 3.5 per cent, which may be met by capital of inferior quality; 1.5 per cent of this may be met with Additional Tier 1 capital and two per cent with Tier 2 capital. The capital requirement of 15.5 per cent of risk-weighted assets in total, excluding countercyclical capital buffer, thus comprises 77 per cent<sup>21</sup> of the Common Equity Tier 1 capital. The corresponding figure for the non-systemically important banks is 67 per cent.<sup>22</sup>

The leverage ratio needs to constitute a requirement for the same type of capital as the capital adequacy requirement (that is, Common Equity Tier 1 capital) if it is to comprise an effective back-stop for the risk-weighted capital adequacy requirement. This militates strongly in favour of it being appropriate to devise the requirement predominantly in terms of Common Equity Tier 1 capital rather than just in terms of Tier 1 capital, as is the case in the Basel Committee's and EU's current designs.

## 7.3 Calibration of the requirement level

To ensure that the leverage ratio serves specifically as only a back-stop and not as the main governing requirement – in line with the assessment made by FI – the requirement needs to be set at such a level that it does not constitute the main governing capital requirement for the majority of firms.

FI has conducted a review of the current leverage ratios for Swedish firms and the capital requirement that these involve at the present time compared with the risk-weighted capital adequacy requirement. It is shown by this review that the level mainly discussed by the Basel Committee and EU at the current time (i.e. three per cent) is well suited to comprise a back-stop under current conditions (see Appendix 6). It is a level that means that the leverage ratio requirement does not constitute the main capital restriction for the vast majority of the firms concerned. This also applies if the requirement is set in terms of Common Equity Tier 1 capital instead of Tier 1 capital.

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<sup>21</sup>  $12/15.5 = 77.42$  per cent

<sup>22</sup>  $7/10.5 = 66.67$  per cent



It should be noted that if the preconditions were to change as regards, for example, the bank's assets or the calculation of the risk-weighted assets, the same analysis may lead in the future to another conclusion concerning an appropriate level for the leverage ratio requirement.

#### **7.4 Minimum requirement or buffer requirement**

The risk-weighted capital adequacy framework includes two different kinds of capital requirement: a minimum capital requirement that must always be satisfied; and a buffer requirement that banks may contravene for a limited period in times of financial stress and subject to stringent conditions.

The Basel Committee's current proposal for a leverage ratio requirement does not include a buffer requirement, but the measure is as such a minimum capital requirement.<sup>23</sup> The United Kingdom's Financial Policy Committee has published an approach<sup>24</sup> whereby a buffer structure emulating the structure within the capital adequacy area (including a countercyclical capital buffer and a buffer for systemic risk/systemic importance) is added on top of the minimum requirement for the leverage ratio.

As regards the issue of which measure will govern the banks' capital planning and business decisions, it is of secondary importance whether the requirement takes the form of a minimum capital requirement or a buffer requirement. The crucial factor is the total capital requirement with which the banks must comply in any normal financial situation. Given that the leverage ratio requirement is to serve as a back-stop for the risk-weighted capital adequacy requirement and calibrated accordingly, the total requirement – whether buffer requirement or not – consequently needs to be set at an appropriate level. As observed above, this level is three per cent Common Equity Tier 1 capital under current conditions.

Assuming that the leverage ratio requirement is set at three per cent, there are no grounds to split the requirement up into a minimum requirement and a buffer requirement. Firstly, FI is currently of the opinion that it is unlikely that the EU's forthcoming framework will allow the minimum requirement to be set lower than three per cent. Secondly, splitting the requirement into a minimum requirement and a buffer requirement introduces further complexity, particularly when combined with a buffer requirement in the risk-weighted capital adequacy framework. This would undermine one of the major advantages of the leverage ratio – its simplicity.

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<sup>23</sup> However, the Basel Committee does not define exactly what the legal consequences are for infringing the requirement, either for the risk-weighted capital adequacy requirement or the capital adequacy requirement. However, it is understood that compliance with these requirements is a precondition for being able to pursue activities. The minimum capital requirement is also implemented in this way in European and Swedish legislation.

<sup>24</sup> *The Financial Policy Committee's review of the leverage ratio*, Bank of England, October 2014. <http://www.bankofengland.co.uk/financialstability/Pages/fpc/fscp.aspx>

Although it does not seem appropriate to split the leverage ratio requirement up into a minimum capital requirement and an explicit and standardised buffer requirement, a bank must maintain some margin in relation to the minimum capital requirement in order to continuously preserve sufficient capital in accordance with the fundamental rules on risk management and capital planning.<sup>25</sup> This means that, just as the bank has to calculate and preserve a capital planning buffer in addition to the risk-weighted capital adequacy requirement and the minimum capital requirement according to the Basel I floor, the bank must also calculate and preserve a capital planning buffer in addition to a minimum leverage ratio requirement. In the same way as for the capital planning buffers for the two first-mentioned purposes, the capital planning buffer in relation to the leverage ratio requirement should be calculated and maintained as part of the banks' internal capital adequacy assessment process and FI's supervisory capital assessment under Pillar 2.<sup>26</sup> This means that the size of the buffer will vary from bank to bank, depending on their individual risk profiles.

## **7.5 Scope**

### **7.5.1 Introduction**

The Basel Committee's agreements only cover internationally active banks. There is no precise definition of what is meant by 'internationally active'. However, it is clear that most or all of the firms affected by the capital adequacy framework in Sweden and within the EU do not belong to this category. This leaves Sweden and the EU free to exclude certain kinds of firm from the leverage ratio requirement without breaching the Basel agreement. One aspect that is also not clearly expressed in the Basel agreement is whether the leverage ratio requirement should also apply at an individual level for all firms that form part of a banking group, or whether it is sufficient to apply the requirement at the consolidated level.

### **7.5.2 Individual level or consolidated level**

FI considers that it is sufficient to apply the requirement at the maximum consolidated level for each banking group in each Member State. This would mean, for example, that the major Swedish banks would only need to satisfy the requirement at the consolidated level. However, each country where the banking groups have subsidiaries can then apply the requirement to these firms either at an individual or subgroup level. Like other issues, this will ultimately be governed by the EU regulation and the national flexibility this involves.

The reasons why FI considers it most appropriate to apply the requirement in respect of the maximum consolidated level is that the framework may otherwise create incentives to re-book assets between firms in such a way that

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<sup>25</sup> See Chapter, Section 2 of the Banking and Financing Business Act (2004:297) and Chapter 8, Section 4 of the Securities Market Act (2007:528).

<sup>26</sup> Cf. Sub-section 2.5 in *Nya kapitalkrav för svenska banker* [available in an English translation, New capital requirements for Swedish banks], published on *fi.se* on 10 September 2014.

the leverage ratio requirement would not involve any real restriction. The banks would thereby be driven towards organising their activities and allocating their asset holdings in a way that is sub-optimal in other organisational respects.

FI also considers that it is of paramount importance that the banking groups are well capitalised particularly at a consolidated level, so that the capital is available for all subsidiaries should the need arise. This is also reflected by the fact that the systemic risk buffers required by the major banks in the risk-weighted capital adequacy framework are only applied at a consolidated level. Applying the leverage ratio at the consolidated level only should thus be consistent with the application of capital requirements for systemic risk.

### **7.5.3 Type of firm**

#### *The ten largest firms*

Assuming that a leverage ratio requirement comes into force, it is obvious that such a requirement should encompass the systemically important banks. FI has already decided that the four major banks are deemed to be systemically important. A decision will be made in 2015 about whether this category should include any other firms.<sup>27</sup> The issue is whether non-systemically important firms should also be covered by the leverage ratio requirement.

FI's banking supervision affords priority to the ten largest groups in terms of how much resources should be set aside for ongoing supervision. This is based on these firms potentially playing an important role in financial stability by virtue of their size, even if not all of them are individually necessarily regarded as systemically important. In light of this, FI considers that a leverage ratio requirement should basically apply to all of the ten largest firms. However, an in-depth analysis needs to be conducted of the impact a requirement would have on a firm that specialises in lending to central governments, municipal authorities and county councils, which applies in respect of Kommuninvest in Sweden; see also Appendix 6.

Large firms also tend to use internal models to a greater extent than small firms. Eight out of the ten largest groups in Sweden use internal models to calculate their capital requirement. This is another factor which indicates that the ten largest firms should be covered by a leverage ratio requirement as the problems associated with risk-weighted capital requirements are accentuated when internal models are used (see Section 2).

FI has chosen to allow the requirement for firms to preserve a certain level of liquidity coverage to only encompass those firms and groups with total assets exceeding SEK 100 billion, which does not include all of the ten largest firms.<sup>28</sup> The reason for this choice is the assessment that a liquidity

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<sup>27</sup> See memorandum entitled *Kapitalkrav för svenska banker* [English translation available, Capital requirements for Swedish banks], FI Ref. 14-6528, published on 10 September 2014 at [fi.se](http://fi.se), pages 37-49

<sup>28</sup> FFFS 2012:6

requirement should cover firms that are both of importance to the Swedish economy and that utilise a relatively high level of market financing. As the leverage ratio is not directly related to the sources of financing used by the firms, FI does not consider that it is relevant to make a distinction in respect of financial sources in this context.

### *The small firms*

A leverage ratio requirement would have a limited impact on the vast majority of firms that use the standardised approach. The remaining benefit primarily comprises the information value that the leverage ratio may entail for a third party's understanding of the capital strength of firms owing to the measure's rather simple structure.

It transpired from a review of the leverage ratio for all small firms (that is, all of the firms concerned in addition to the ten largest groups) – virtually all of which use the standardised approach when determining risk weights – that none of the firms has a leverage ratio of less than five per cent. Furthermore, only one firm has a leverage ratio of less than six per cent. See supporting data in Appendix 6. Consequently a leverage ratio requirement of five per cent or less should not affect these firms in practice. Nor should a requirement involve further burdensome administrative work for the firms, as they already currently report the leverage ratio and will have to disclose it from and including next year (see Sub-section 1.3).

FI's assessment, which is shown in Section 5, is also that the leverage ratio requirement may fulfil a function that a standardised approach does not for firms that make significant use of financial collateral or have significant exposures to central governments. FI therefore considers that a leverage ratio requirement should cover all of the firms concerned as the leverage ratio is to be reported and disclosed by firms anyhow. Although none of the small firms currently lie below the level of five per cent, it is also reasonable for there to also be a back-stop for the lowest possible leverage ratio for these firms considering that a requirement does not result in any further administrative burden. This will ensure that small firms are not able to pursue activities in the future that involve an excessive level of indebtedness.

In summary, FI thus draws the conclusion that a future leverage ratio requirement should cover all kinds of firm that are currently covered by the leverage ratio provisions in the Capital Requirements Regulation. It should be noted here that according to Article 6.5 of the Capital Requirements Regulation, all institutions (except for investment firms referred to in Articles 95.1 and 96.1) are covered by the leverage ratio provisions contained in the Regulation. Furthermore, certain groups of investment firms may, according to Article 16 of the Regulation, choose to apply the leverage ratio rules on a consolidated basis. According to this article, a parent investment firm may choose not to apply the leverage ratio rules contained in the Regulation in the event that all firms within the group, including the parent investment firm, are exempt in accordance with Article 6.5.

## 7.6 Entry into force

As indicated in Sub-section 1.3, the European Commission is to submit a report concerning the leverage ratio requirement to the European Parliament and the Council of the European Union by no later than 31 December 2016. If necessary the report should be accompanied by a legislative proposal. The EU's time schedule in this respect appears to be adapted to the intention of the Basel III agreement that the leverage ratio should be introduced as a binding measure in 2018. FI consequently expects that an EU regulation concerning a leverage ratio requirement will enter into force in 2018 or shortly thereafter.

It was observed in Sub-section 1.3 that FI is authorised to issue regulations concerning a leverage ratio requirement for banks. However, any Swedish regulations in this area need to be revoked once the EU's regulation has entered in force. Assuming a rather quick regulation process, it should be possible for a Swedish regulation to enter into force at the start of 2016, thus only two years before the expected entry into force of the EU regulation. In light of this, FI considers that bringing forward the introduction of a leverage ratio requirement in Sweden should only be implemented if there are strong grounds to do so.

Considering that FI is currently advocating a requirement level of three per cent and that all of the firms affected (except Kommuninvest with its special circumstances) already currently satisfy a leverage ratio requirement of three per cent, FI considers that there are insufficient grounds for introducing a leverage ratio requirement in Sweden prior to the requirement being introduced through EU regulation.

## Appendix 1 – Description of the leverage ratio

### Overall description

The leverage ratio is a measure of solvency. Solvency indicates the proportion of the bank's assets financed by equity

$$\text{Solvency} = \frac{\text{Equity}}{\text{Total assets}}$$

However, the leverage ratio differs from the usual measure of solvency in two important respects: the first relates to the numerator and the second relates to the denominator.

In terms of the numerator, it is important to only include those values that may be realised when a bank is wound up, as the purpose of a bank's leverage ratio requirement (in the same way as the capital adequacy requirement) is that there should be a capital buffer for bad times. Some deductions are therefore made from the equity (and correspondingly from the total assets). For example, intangible assets, of which goodwill represents an important item for many banks, and deferred tax assets may not be included. Furthermore, there is a requirement for the banks to be particularly prudent when valuing their assets. The equity that remains after these adjustments is referred to as 'Common Equity Tier 1 capital'. It is otherwise the same definition of 'Common Equity Tier 1 capital' that is applied for the leverage ratio as for the customary risk-weighted capital adequacy ratio. It is also the case that the banks, according to the leverage ratio definition used by the Basel Committee, may include in the firm's leverage ratio 'hybrid capital instruments' (which may be counted as Additional Tier 1 capital according to the definitions in the capital adequacy framework).

In terms of the denominator, the assets in certain cases are entered at different amounts to those in the accounts, as the purpose of the accounting framework does not coincide in all respects with the purpose of a leverage ratio. These amounts are referred to as 'exposure amounts'. Commitments that are not entered in the balance sheet are also included in the total amount of exposures. Overall this results in an improved measure of solvency, which can simply be expressed as follows:

$$\text{Leverage ratio} = \frac{\text{Equity} - \text{deductions} + \text{hybrid capital}}{\text{Total assets} - \text{deductions} + \text{commitments}}$$

Using the framework's terminology, the ratio is specified as follows.

$$\text{Leverage ratio} = \frac{\text{Tier 1 capital}}{\text{Total exposure amount}}$$

## Calculation of the exposure amount

One of the great advantages of the leverage ratio is its simplicity, which is often stressed in discussions about the need for a leverage ratio requirement. When the ratio is used to measure the capital strength of large commercial banks, it is inevitably the case that the banks' balance sheets include a number of assets that are complicated in themselves and for this reason it also inevitably becomes complicated to determine an exposure amount for certain assets. There are consequently detailed rules specifying how to determine the exposure amount in order to be able to calculate the leverage ratio.<sup>29</sup>

The total amount of exposures is calculated as the total of the exposure amounts for all exposures – that is, both assets and items outside the balance sheet – that have not been deducted from the Tier 1 capital. So far so good. The complication arises when determining the exposure amounts for some of the exposures. The fundamental rule is that all exposures should be included at their full nominal value after specific provisions, write-offs and the like. This applies to both credit already disbursed and various forms of promises of future disbursements. However, certain significant exclusions are made from this fundamental rule. Among other things, an exposure amount for derivative contracts is calculated as the sum of the derivative contract's positive market value and a potential future credit exposure. The potential future credit exposure is calculated by multiplying the underlying value of the contract by a percentage rate, which varies between zero and 15 per cent depending on type of contract and residual maturity. Positive and negative market values together with opposite positions may be netted off against each other in accordance with certain strict criteria. The exposure amount for derivative contracts may also be reduced for collateral margins received, but only if they comprise cash. The exposure amount for undrawn credit facilities is determined by multiplying the nominal value by between 10 and 50 per cent, depending on, among other things, maturity.

## Difference in relation to the capital adequacy requirement

The calculation of the exposure amount, which comprises the denominator in the leverage ratio, is largely the same as the calculation of the exposure amount in the capital adequacy framework. (The differences are mainly due to capital market driven-transactions and derivative contracts in which financial collateral is common.) The first major difference between the capital adequacy requirement and the leverage ratio requirement is that each exposure in the capital adequacy is multiplied by a risk weight, which generates the exposure's risk-weighted exposure amount. The total risk-weighted exposure amount is the sum of all of the individual exposures' risk-weight exposure amounts. The exposure's risk weight should reflect the unexpected loss that the exposure is envisaged to cause in times of highly severe financial stress. The risk weight may vary between 0 and 1250 per cent (the latter may be considered to most

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<sup>29</sup> Commission's Delegated Regulation (EU) No C(2014) 7237 of 10 October 2014 amending Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to the leverage ratio.

closely resemble a full deduction from own funds), but it is usually less than 100 per cent. There is no risk-weighting in the leverage ratio requirement.

$$\text{Leverage ratio} = \frac{\textit{Tier 1 capital}}{\textit{Total exposure amount}}$$

$$\textit{Tier 1 capital requirement} = \frac{\textit{Tier 1 capital}}{\textit{Total risk-weighted exposure amount}}$$

The second significant difference is that the capital adequacy framework requires most of the capital requirement to be met by Common Equity Tier 1 capital. Only a small part of the requirement may be met by Additional Tier 1 capital (and furthermore some by Tier 2 capital). The leverage ratio requirement may be fully met by Additional Tier 1 capital in accordance with the definition used by the Basel Committee and the Capital Requirement Regulation.



## Appendix 2 – Legal basis

### EU regulation

The Basel III agreement has been implemented within the EU both through a Directive and a Regulation. The Capital Requirements Directive (CRD)<sup>30</sup> and the Capital Requirements Regulation were adopted by the European Parliament and the Council of the European Union on 26 June 2013 and apply from and including 1 January 2014. The current legal instruments do not include a leverage ratio requirement.

Article 511 of the Capital Requirements Regulation specifies that the European Commission is to submit a report on the leverage ratio to the European Parliament and the Council by 31 December 2016. This report should be based on a detailed analysis that is to be conducted by the European Banking Authority (EBA). Where appropriate, the report should be accompanied by a legislative proposal. Here it should be noted in particular that a leverage ratio cannot be introduced by the Commission through a ‘delegated act’ unlike, for example, the liquidity coverage ratio. Any introduction of a leverage ratio requirement would therefore presume that the legislative proposal is dealt with in accordance with the EU’s complete legislative process, including the customary negotiations within and between the Council and the European Parliament that the process involves.

However, the Capital Requirements Regulation already currently includes a requirement for the reporting and public disclosure of the leverage ratio. Under Article 451 of the Capital Requirements Regulation, the banks must disclose information about their leverage ratio. The disclosure requirement applies from 1 January 2015; see Article 521.2 item (a) of the Capital Requirements Regulation. All significant firms<sup>31</sup> and groups must disclose their leverage ratios quarterly, while the requirement applies annually for other entities and groups; see Article 13 of the Capital Requirements Regulation and Article 106.1 of the Capital Requirements Directive together with Chapter 8, Section 7 of Finansinspektionen’s Regulations (2014:12) regarding prudential requirements and capital buffers. A template for disclosures has been drawn up by EBA in the form of a technical standard.

Under Article 430 of the Capital Requirements Regulation, the banks must submit to the competent authorities all necessary information on the leverage ratio. The first report was submitted in Quarter 1, 2014 and reports are to be submitted every quarter. The reporting template for the leverage ratio forms

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<sup>30</sup> Directive 2013/36/EU of the European Parliament and of the Council of 26 June 2013 on access to the activity of credit institutions and the prudential supervision of credit institutions and investment firms, amending Directive 2002/87/EC and repealing Directives 2006/48/EC and 2009/49/EC.

<sup>31</sup> There is no exact definition of ‘significant firms’, but in the decision memorandum for Finansinspektionen’s Regulations (2014:12) regarding prudential requirements and capital buffers, FI describes in more detail the considerations that the authority will make when assessing whether an firm is ‘significant’.

part of the ‘COREP templates’<sup>32</sup> produced by EBA and adopted by the European Commission in the form of an Implementing Technical Standard concerning technical standards for the implementation of an institution’s supervisory reporting.<sup>33</sup> It is stated in the Implementing Technical Standard that the reporting is to be carried out quarterly, but include the values on the last day of each month for each quarter. The reporting requirement encompasses all firms and groups covered by the capital adequacy framework.

Article 429 of the Capital Requirements Regulation (CRR) states how the leverage ratio should be calculated. This Article is based on the Basel Committee’s original definition of the leverage ratio (from 2010). However Article 456, item (j) empowers the Commission to through a delegated act amend the definition of both the capital measure (the numerator) and the exposure measure (the denominator) in the leverage ratio before this has to be disclosed by the firms. The Commission published a delegated act<sup>34</sup> on 10 October 2014 that includes new wording for Article 429, including a definition adapted to the Basel Committee’s definition of the leverage ratio from January 2014. The delegated act enters into force on the same day as it was introduced in the Official Journal of the European Union. No precise date has been set for when this will take place, but FI expects this to be within the next couple of months.

### **Right to national self-determination**

The European capital adequacy framework is a ‘fully harmonised framework’, which means that the Member States must not only comply with the rules encompassed by the framework, but are also prohibited from establishing more stringent rules nationally. On the other hand, Member States are entitled to establish national rules in this area if no rules currently exist.

The above-mentioned applies to, for example, the requirement to maintain a liquidity buffer. The Capital Requirements Regulation only includes a general requirement for a liquidity buffer and a requirement for reporting and disclosure. There is however no quantitative requirement. Sweden can therefore retain its regulations concerning a liquidity coverage ratio even after the Capital Requirements Regulation has entered into force.

The same arrangement applies to the leverage ratio. It is expressly indicated by Recital 18 of the Capital Requirements Regulation that Member States should be able to apply such measures as they consider appropriate (including measures to mitigate macroprudential or systemic risk in a specific Member

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<sup>32</sup> COREP (Common Reporting) is a generic term for the EU-joint reporting templates that have been used by all firms concerned within the EU from and including the first quarter of 2014 for reporting capital adequacy, leverage ratio, large exposures and liquidity to competent authorities.

<sup>33</sup> The reporting templates can be found on pages 451 to 461 of the Implementing Regulation; see <http://eur-lex.europa.eu/legal-ontent/SV/TXT/PDF/?uri=OJ:L:2014:191:FULL&from=EN>.

<sup>34</sup> Commission's Delegated Regulation (EU) No C(2014) 7237 of 10 October 2014 amending Regulation (EU) No 575/2013 of the European Parliament and of the Council with regard to the leverage ratio.

State) until the harmonisation of liquidity requirements in 2015 and the harmonisation of a leverage ratio in 2018.

### **FI's authorisations**

It is indicated by the preparatory works to the Supervision Act that the new requirements for the banks to consider the risk of an excessive leverage ratio in its risk management and requirements for the banks' liquidity risk profiles under Articles 86 and 87 CRD should be implemented through regulations within the framework of existing authorisations to Chapter 6, Section 2 of the Banking and Financing Business Act (2004:297 – LBF) and Chapter 8, Section 4 of the Securities Market Act (2007:528 – LVM).<sup>35</sup>

It follows from Chapter 6, Section 2 LBF and Chapter 8, Section 4 LVM that the banks are to identify, measure, govern, internally report and have control over the risks associated with their business. Firms must also ensure that they have satisfactory internal control. In addition, firms must ensure in particular that their credit, market, operational and other risks do not when taken together jeopardise their capacity to satisfy their commitments. In order to fulfil this, firms should have methods that make it possible to continually evaluate and preserve capital that is sufficient in terms of amount, type and allocation to cover the nature and level of the risks to which they are or may become exposed. The methods must be evaluated to ensure that they are comprehensive. Through the authorisations contained in Chapter 5, Section 2, item 5 of the Banking and Financing Business Ordinance (2004:329) and Chapter 6, Section 1, item 9 of the Securities Market Ordinance (2007:572), FI may issue regulations about the measures that a credit institution or an investment firm is to take to meet the requirements for solvency and liquidity, risk management, transparency, soundness together with guidelines and instructions. Requirements should be applied in proportion to the nature and scope of the operations and level of complexity of firms (Chapter 6, Section 4 (a) LBF and Chapter 8, Section 6 LVM); see Government Bill 2013/14:228, pp. 179-180.

Consequently, FI ought to be able to issue regulations including a leverage ratio requirement within the framework of existing authorisations, as an excessive leverage ratio is a risk that the firms are obliged to manage themselves.

Under Section 16, item 13 of the Special Supervision and Capital Buffers Ordinance (2014:993), FI is also authorised to issue regulations supplementing the provisions of the Capital Requirements Regulation in respect of the leverage ratio. According to the legislative commentary to the Special Supervision and Capital Buffers Act (2014:968 – ‘the Supervision Act’), this authorisation includes power for FI to issue regulations concerning conditions for the exemption under Articles 6.5 and 16 in respect of an exemption for certain investment firms to report and disclose the leverage ratio and also permission under Article 499.3 concerning an exemption from calculating monthly ratios.

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<sup>35</sup> pp. 179-180 of Government Bill 2013/14:228 on strengthened capital adequacy rules.

## Appendix 3 – The reliability of the risk-weighted capital measures

### Introduction and overall assessment

FI considers that a risk-weighted capital adequacy requirement is preferable to one without any risk weighting if one wants to avoid giving the banks an incentive to increase the risk level in their assets, which is indicated by the main memorandum. However, this is based on the assumption that the risk-weighted capital adequacy framework includes relevant information about the risk in the assets. Criticism has been voiced in recent time regarding the reliability of the risk weights calculated using internal models. As shown in Section 2, FI partly agrees with this criticism. However, the issue is whether the problems are so serious that the risk-weighted capital adequacy framework cannot be deemed to fulfil its purpose to a sufficient extent.

FI's overall assessment is that there are problems with the risk weights according to the internal models. FI considers that, although the problems are not insignificant, they are still of such limited scope for the risk weights to nonetheless basically mean that the capital adequacy framework requires more capital for higher risks. The incentive structure that the risk-weighted capital adequacy framework is thought to create thereby exists. The conclusion drawn by FI regarding this is that the existing reliability problems in respect of the risk weights are best dealt with within the framework of the risk-weighted capital adequacy framework, not by completely phasing out the use of risk weights and internal models.

### Ranking of risk

The risk weights under the internal models are based on the banks' internal ratings.

When the Basel Committee reviewed how a large number of internationally active banks rated the same counterparties (large counterparties with syndicated loans that thus have exposures with a number of banks), they were able to conclude that the banks generally agreed about the relative risk level between the counterparties. That is, when assessing two counterparties, they generally agreed with each other about which counterparty they considered to be more risky than the other.<sup>36</sup>

FI draws the conclusion from the Basel Committee's investigation that the ranking of risk according to the internal models seems to function relatively well. This also corresponds with the results from the rating method validations that the Swedish banks conduct annually, which show that the ranking from the highest to the lowest risk under the internal models generally has a high coefficient of determination for which counterparties ultimately default on their

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<sup>36</sup> See Sub-section 4.2 of the *Regulatory Consistency Assessment Programme (RCAP): Analysis of risk-weighted assets for credit risk in the banking book*, published by the Basel Committee in July 2013. <http://www.bis.org/publ/bcbs256.pdf>

credit. (However, also see Sub-section 2.3 for a report on the banks' incentive to apply undue optimism when rating individual counterparties.)

### Calibration of risk level

According to the investigation conducted by the Basel Committee previously referred to, there are significant differences between the banks' calibration of the absolute risk level for the same counterparty. That is, even if banks generally have the same opinion about which counterparty is more risky than another, there is often a difference in the assessment of the magnitude of the loss risk in absolute terms that an exposure to the counterparty infers. This also corresponds with FI's analyses of the Swedish banks' risk weights, where the validation results indicate that the models are not always accurate when predicting the actual outcome and where FI may conclude that the risk weights according to the internal models, for at least apparently similar portfolios, may differ from bank to bank.

### How variations in risk weight may arise

One of several explanations for the banks' difficulty in estimating the actual level of the credit risk, as described above, is that a large proportion of the total credit losses that a portfolio of credit assets may cause over a long period often emerge over a limited period. By way of explanation, the following provides a hypothetical and simplified yet not entirely unrealistic example of how variations in the average risk weight of two similar credit portfolios at two different banks may arise.

*Bank 1 and Bank 2 are to estimate the average credit losses for a mortgage portfolio. These estimates form the basis of the capital requirement under the internal models. The banks have access to a good quality credit data history for the past 20 years, i.e. from and including 1995 up to today. Credit losses from mortgages have been low over this period. The history, which is similar for both banks, shows that the average annual credit losses varied between 0.05 per cent and 0.15 per cent, with an average annual loss of 0.1 per cent. The problem is that this figure says very little about the long-term average loss in the portfolio, as the data history does not include any really adverse year. Both banks therefore, in accordance with minimum requirements for the internal models, attempt to use various ways of estimating the potential extent of credit losses in adverse years.*

*Using Bank 1's method, which is based on aggregate data from the Swedish financial crisis at the start of the 1990s plus a small safety margin, the average credit losses for three adverse years are estimated to amount to 0.3 per cent annually. Using Bank 2's method, which is based on international crisis data available, the average credit losses for three adverse years are estimated to amount to one per cent annually. Bank 1 consequently estimates the expected loss for mortgages to be 0.13 per cent ( $0.13\% = [0.1\% * 20 + 0.3\% *$*

3] / 23) while Bank 2 estimates it as 0.22 per cent ( $0.22\% = [0.1\% * 20 + 1.0\% * 3] / 23$ ).

*This example shows that Bank 2 estimates the risk level to be 1.7 times higher than Bank 1 despite the banks having similar portfolios. And this is despite both banks having a similar loss history and both conforming to the framework's minimum requirements for internal models. In relative terms, this difference is of course significant, and presumably too great to be acceptable for the banks from a competition perspective. However, it may be argued at the same time that the estimates by both banks provide a good indication of the risk level for their portfolios in broad terms – that is, portfolios with a low credit risk.*

### Reasons for falling risk weights in recent years

The average risk weight of the major banks has dropped significantly in recent years, from 47 to 23<sup>37</sup> per cent between 2006 and 2013 (Diagram 3.1). An important matter in this context to which degree to which this is due to the banks' capital minimisation, which was discussed in Section 2. FI has analysed the causes of this drop and the results show that the drop in the average risk weight can largely be explained by three factors:

- authorisation of internal models in connection with the implementation of Basel II in Swedish legislation ('Introduction of Basel II' in Diagram 3.1),
- authorisation of internal models after the implementation of Basel II ('Introduction of new IRB models' in Diagram 3.1), and
- that the lending has been steered to less risky segments ('ending segment' in Diagram 3.1).

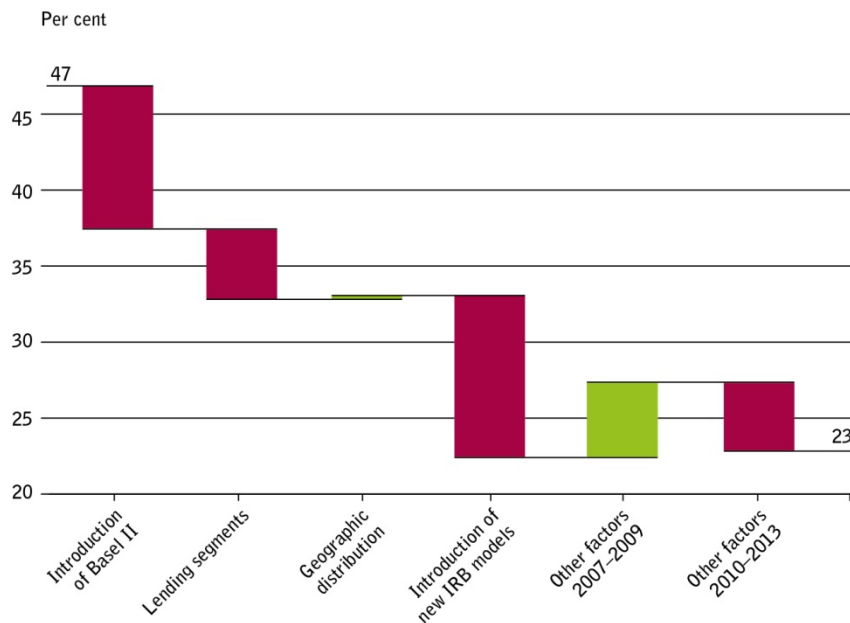
FI conducts an extensive review of an internal model before granting the banks permission to use the model for capital adequacy requirement purposes.

The potential effect of the measures taken by banks to reduce the capital adequacy requirement is incorporated with a number of other factors within the remaining unexplained post, referred to as 'Other factors' in Diagram 3.1. In FI's opinion, it was towards the end of 2009 that the stock market and hence the banks started to focus strongly on the risk weight levels and measures to reduce the capital requirement at the end of 2009. This is the main reason why the effects of Other factors have been divided into two time intervals in the diagram. Between 2007 and 2009 Other factors contribute to an increase in risk weights, whereas from and including 2010 they contribute to a reduction of the risk weights by 5 percentage points ('Other factors 2007-2009' and 'Other factors 2010-2013' in Diagram 3.1 respectively). The measures taken by the banks to minimise the risk weights can thus at most have reduced the risk weights by 5 percentage points. However, there are also many other factors that may be accommodated within the 'Other' item, including changes to the quality of assets within each segment and geography.

<sup>37</sup> Calculated without taking account of the risk weight floor for mortgages. The current average risk weight is 30 per cent taking account of the risk weight floor.

Another factor to be included within the post Other factors is the effect of the business cycle on risk weights. The risk weights are affected by which class of risk the banks' counterparties are given in the banks' internal risk classification system. The risk classes are updated annually and the classification can therefore be expected to be affected by cyclical fluctuations, which in turn lead to the risk weights rising during economic upturns and falling during downturns. FI does not have the possibility to isolate, and thereby precisely quantify, the effect of the cyclical fluctuations on these changes, but a reasonable interpretation is that the economic downturn in 2007-2009 was an important factor behind the rise in risk weights during the same period. Similarly, one could interpret falling weights in 2010-2013 largely as a result of the economic upturn. This would leave little room for the effects of capital minimisation. Another interpretation of the fall in risk weights in 2010-2013 is that it was mainly driven by capital minimisation and only to a small degree by cyclical fluctuations. Capital minimisation would then, at most, be able to explain 5 percentage points of the total decline in average risk weights, from 47 to 23 per cent since 2006.

3.1 Change in the average risk weight of major banks (Q4 2006-Q4 2013)



*Note: The diagram is based on data reported by three of the four major banks which, at the time of publishing, had delivered data of the required quality.*

## Appendix 4 – Possible effects on the behaviour of banks

### Introduction

It was concluded in Section 3 that a leverage ratio gives the banks an incentive to increase the risk level in their assets. Various possible concrete measures that the Swedish banks may consider taking in order to do this are discussed in Section 4 and in further detail in this appendix. The issue most discussed in this context is the potential securitisation of Swedish mortgages. There are also other measures that might potentially be relevant.

### Business models for mortgages

One potential measure to increase the risk of the total assets is to sell off low-risk assets. Swedish mortgages are normally regarded as low-risk assets.

FI considers that the prevailing business model in the Swedish mortgage market – that is, that the banks market, approve and subsequently hold the mortgages on their own balance sheets – has supported financial stability. This model is usually referred to as ‘originate-and-hold’. It differs from the business model that is common in, for example, the United States: ‘originate-and-distribute’. This model means that those participants that market and approve mortgages subsequently distribute them to a third participant. It is customary to securitise the loans so that mortgages can be easily traded, even on the secondary market. The reason for FI preferring an ‘originate-and-hold’ model over an ‘originate-and-distribute’ model is that there are manifest incentive problems associated with the participant responsible for credit approval not having to bear any credit losses.<sup>38</sup> Furthermore, it becomes more difficult to achieve transparency and regulate the mortgage market if mortgages are not held by firms subject to financial regulation and supervision.

According to the major banks’ internal models, Swedish mortgages have an average risk weight of approximately five per cent. FI has set a risk weight floor of 15 per cent to reflect the future credit risk of mortgages and a further ten percentage points to cover the systemic risks caused by mortgages. This means that a 25-per-cent risk weight currently applies. A comparison is made between 25 per cent and the risk weight, which means that the risk-weighted capital adequacy requirement imposes the same capital requirements in Swedish kronor as the leverage ratio requirement, in order to assess how much more capital a leverage ratio requirement would involve than the risk-weighted capital requirement. The results are shown in Table 4.1. From the table it can be seen, for example, that a three-per-cent

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<sup>38</sup> In order to limit these problems somewhat, the EU has introduced a requirement within the framework of the Capital Requirements Regulation that has the effect that the operator who sells the securitised assets must retain a loss risk corresponding to at least five per cent of the portfolio. However, 95 per cent of the loss risk may be transferred. See Article 405 of the Capital Requirements Regulation.



leverage ratio for major banks corresponds to a 22-per-cent risk weight, while a five-per-cent requirement corresponds to a 37-per-cent risk weight.

TABLE 4.1. Comparative risk weights for various levels of the leverage ratio requirement (%)

	3%	4%	5%
Major banks	22	30	37
Other firms	35	47	59

*Note: A Tier 1 capital requirement of 13.5 per cent for major banks and 8.5 per cent for other banks has been used to calculate the table and no account has been taken of the fact that the definition of the exposure amount can differ slightly between the leverage ratio and the capital adequacy ratio.*

The industry's contribution to the debate sometimes gives the impression that a leverage ratio exceeding the three per cent level would immediately force banks to securitise mortgages. This analysis paints a different picture. A leverage ratio requirement of as much as five per cent, which thus corresponds to a 37 per cent risk weight, would increase the Tier 1 capital requirement for mortgages compared with the current requirement by just under 50 per cent or twelve percentage points. This is certainly a significant increase although in scope it is still broadly in line with the recently implemented increase of the risk weight floor to 25 per cent from the previous figure of 15. FI is able to conclude that the banks' lending in the form of mortgages continues to demonstrate healthy profitability even with a 25-per-cent risk weight. It is also the case that the issue of capital is only one of several components that determine which business model is most profitable. The cost of other financing is still the most decisive component and may be higher for securitisations than in the current business model, where covered bonds are used to finance mortgages.

It should be stated at the same time that when requirements reach such a point that capital requirements within the banking sector become so much higher than the capital that the unregulated sector considers it needs for the same assets that the scales for the profitability of their respective business models' tip over, then changes may occur suddenly and very large transactions may be conducted over a short period. It is significantly more difficult however to reverse such a change. Such rapid changes may therefore have enduring consequences. There is therefore cause to be very vigilant about the effect of capital requirements on the driving forces for banks and thus their business models.

### **Other possible measures**

Exposures to central governments comprise the exposures that demonstrate the greatest difference in capital requirement between the leverage ratio requirement and the risk-weighted capital requirement. There is thus reason to believe that the banks might seek to minimise their exposures to central governments if the leverage ratio requirement were to become the binding capital restriction. The Swedish banks' exposures to what are regarded as

‘sovereign risks’ comprise, for example, their holdings of central government bonds, deposits of surplus liquidity at central banks and loans to Swedish municipal authorities and county councils. Banks’ holdings of exposures to central governments and deposits with central banks form an integral part of the banks’ liquidity management. Other exposures for which the leverage ratio requirement involves a significantly higher capital requirement than the risk-weighted capital adequacy requirement are holdings of covered bonds. The banks hold these different kinds of low-risk asset in their liquidity buffers. A leverage ratio requirement as a binding capital restriction thus gives the banks the incentive to reduce these buffers within the scope of the liquidity framework, which would impair their capacity to counter liquidity pressures.

As previously noted, the internal models give each individual exposure an individual risk weight. There is consequently a large number of exposures with a significantly lower capital requirement according to the risk-weighted capital adequacy framework within exposure classes for which the average risk weight involves a higher capital requirement than the leverage ratio requirement. This applies to, among others, corporate exposures. In terms of earnings, stable undertakings with a high credit rating have a low risk weight according to the banks’ internal models. The banks’ credit portfolios are usually built up through a large number of day-to-day credit decisions made at local bank branches and by regional credit committees. Account managers are currently given an incentive through the banks’ internal risk-adjusted profitability calculation system to increase their credit exposure to low-risk customers and reduce it to high-risk customers. This has a marked positive effect on the quality of assets in the banks’ credit portfolios (and is in general a possible part-explanation for the banks’ falling risk weights in recent years; see also Appendix 3). The introduction of a leverage ratio as the binding capital restriction would entail counter-incentives for individual bank branches and account managers, which in time may result in a significant deterioration of asset quality. Such a reversal will not leave any obvious trace in the banks’ balance sheets but can only be monitored using the banks’ own rating system and by it ultimately having an impact in the form of increased credit losses.

### **The risk weight floor and incentive problems**

The incentive problems described in Section 3 arose for Swedish mortgages as of the introduction of the risk weight floor of 15 per cent (subsequently raised to 25 per cent). However, FI considers that these problems are significantly less for Swedish mortgages in particular than for the bank’s assets in general.

First and foremost, the incentives for increasing the risk level on account of the risk weight floor are limited to the risk in the mortgage portfolio only.

Secondly, there are factors with regard to Swedish mortgages that mean that FI is less concerned about incentive problems within the mortgage portfolio than within other credit portfolios. When the risk weight floor was introduced, FI stated that there is certainly a major difference in capital requirements between the credit in the portfolio that is considered to have the highest risk and that which is considered to have the lowest risk according to the internal models. However, the difference is significantly less for new credit that satisfies the

criteria to be granted. Banks that apply the IRB approach use rather standardised criteria to assess the creditworthiness of counterparties, and likewise the value of the collateral, and the credit that is accepted is consequently at the time that credit is granted not allowed to entail any manifest increase in risk. FI also confirmed that many banks had not applied risk-differentiated pricing within the mortgage segment at that point in time, despite capital requirements being risk differentiated. FI also emphasised that the authority monitors all significant changes in the banks' lending strategies within the framework of its ongoing supervision.<sup>39</sup>

FI's supervision of the credit quality of the banks' mortgage portfolios has further intensified since the introduction of the risk weight floor in 2013. The quality of the banks' new mortgages were reviewed in detail in the course of FI's annual mortgage survey, and those banks that were shown to have inferior quality compared to the others in the survey were included in a special follow-up. FI also conducted an extensive review of the bank's asset quality in 2014, a review that also encompassed Swedish mortgages. It may also be mentioned that the credit granting criteria for mortgages are regulated in part at a more detailed level than lending in general, both through general provisions contained in the Consumer Credit Act and through FI's 'mortgage ceiling'. In addition to this there are also plans to introduce a specific minimum amortisation requirement.

All in all, this means that FI considers that there is significantly less risk of the credit origination standards being undermined within the mortgage segment than within the banks' assets in general. However, it should be emphasised that this reasoning does not apply to the business model for mortgages in general and that it only applies for as long as mortgages are kept within the regulated sector.

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<sup>39</sup> *Riskviktsgolv för svenska bolån* [English translation available, Risk weight floor for Swedish mortgages], Finansinspektionen, 21 May 2013.  
[http://www.fi.se/upload/43\\_Utredningar/40\\_Skrivelser/2013/riskviktsgolv-svenska-bolan-12-11920-21maj2014.pdf](http://www.fi.se/upload/43_Utredningar/40_Skrivelser/2013/riskviktsgolv-svenska-bolan-12-11920-21maj2014.pdf)

## **Appendix 5 – Alternatives to the introduction of a leverage ratio requirement**

### **Introduction**

An analysis is reported in this appendix of whether there are alternatives to the leverage ratio requirement to limit the problems with the risk-weighted capital adequacy framework.

The capital adequacy framework functions in a clearly different way if the bank uses an internal model to calculate the risk weights as opposed to using a standardised approach. Those banks in Sweden that use an internal model to calculate the capital requirement for credit risks have a market share in the credit market (the part that comprises firms under supervision) of over 90 per cent. The risk-weighted capital adequacy requirement on the part of Sweden should thus be mainly evaluated on the basis of how the framework functions when the banks use internal models. It is therefore relevant to evaluate a wider application of the standardised approach as an alternative to introducing a leverage ratio requirement.

For Swedish banks, the capital requirement for credit risks comprises almost 90 per cent of the total capital requirement. FI's analysis of how the leverage ratio requirement interacts with the risk-weighted capital requirement consequently focuses on the credit assets of firms.

### **Use of the current standardised approach for risk-weighting**

A proposal is currently being prepared within the Basel Committee whereby a new standardised approach will serve as the basis for a permanent floor for the capital requirement for banks using internal models. (FI's view is that if the floor and the new standardised approach is devised in a well thought-out way, it may be an appropriate measure for limiting model risks. However, a floor may have similar disadvantages to the leverage ratio requirement if the floor and the standardised approach is devised in an inappropriate way. We will, however, not evaluate the floor itself in this section but will analyse whether a wider application of a standardised approach may comprise an alternative to a leverage ratio requirement.) FI's assessment is that the leverage ratio requirement fulfils a function that a standardised approach does not for banks that make significant use of financial collateral and also have significant exposures to central governments, which is often the case for the large banks that use internal models. For banks with more complex operations, a wider application of the standardised approach, for example as grounds for a rule imposing a floor, is therefore not a fully satisfactory alternative to a leverage ratio requirement.

The current standardised approach for credit risks has several similarities with the leverage ratio. According to the current standardised approach, all exposures in an exposure class receive the same risk weight; this is in contrast to the internal models, where each individual exposure receives a risk weight based on its individual risk. To that extent, the standardised approach functions

in the same way as a leverage ratio requirement within each exposure class, but at different levels in each class. The risk that banks may misuse the framework's possibilities to minimise the capital requirement is therefore more restricted with the standardised approach than with the internal models. There will also continue to be a risk of measurement errors when using the standardised approach, though these derive instead from the possibility of the regulator having incorrectly assessed the risk.

Appendix 4 indicates what risk weight a leverage ratio requirement corresponds to (that is, the risk weight at which the Tier 1 capital requirement in Swedish kronor becomes the same with the leverage ratio requirement as the risk-weighted capital requirement). A leverage ratio requirement would be pointless for banks that use the standardised approach and only have exposures in exposure classes that, according to the approach, are attributed a risk weight that is the same as or exceeds the risk weight levels in the table, in the sense that the requirement can never be lower than the leverage ratio requirement. By way of comparison, mortgages are attributed a 35-per-cent risk weight in the current standardised approach, while unsecured loans for private individuals are attributed 75 per cent and unsecured loans for firms 100 per cent.<sup>40</sup>

However, exposures to central governments (for example deposits with a central bank or holdings of government bonds) may be attributed a risk weight as low as zero per cent under the standardised approach. It is important to note the difference in how the leverage ratio requirement deals with exposures to central governments compared with the current standardised approach. Another difference between leverage ratio requirements and standardised approaches is how firms are permitted to take into account financial collateral and netting when calculating the exposure amount. The bank may only take very limited account of netting agreements and collateral with the leverage ratio, while many kinds of financial collateral for all kinds of credit may be included using the standardised approach. However, the difference is in practice minor as regards more traditional lending, as neither financial collateral nor netting is particularly significant within that part of the operation.

As regards the issue of complexity, FI considers that the standardised approach is much simpler than the internal models and that there are thus significantly less complexity problems. However, the mere fact that the exposures are risk weighted means that the measure is more difficult to interpret than a leverage ratio, which may be considered to provide a more intuitive understanding of a bank's capital strength.

The fact that a leverage ratio has several similarities to the current standardised approach, particularly for traditional lending activities, is illustrated by the fact that very few of the banks using the standardised approach would currently be affected by a leverage ratio requirement even at a level as high as six per cent; see Appendix 6. One notable exemption is Kommuninvest, which generally

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<sup>40</sup> Firms with an external credit rating from an external credit assessment institution (which in practice only involves the very largest firms) may receive a lower or higher risk weight, though never lower than 20 per cent.

only has exposures to Swedish municipal authorities and county councils (which are treated as exposures to central governments on account of their taxation powers).

We have concluded that the crucial differences, in terms of credit exposures, between the capital requirements that the standardised approach results in and the capital requirements that the leverage ratio results in mainly stem from how the standardised approach deals with financial collateral and exposures to central governments. Firms with substantial assets<sup>41</sup> (that is, credit institutions, as opposed to investment firms) that use the standardised approach primarily pursue traditional lending. FI therefore draws the conclusion that a leverage ratio requirement would currently be of limited benefit for the vast majority of firms that use the standardised approach. The remaining benefit primarily comprises the information value that the leverage ratio may have for an external party's understanding of the capital strength of firms owing to the measure's relatively simple structure. As described in Appendix 2, the Capital Requirements Regulation includes a requirement to disclose the leverage ratio from and including 2015.

### **The Basel I floor**

FI considers that the facts that (a) the Basel I floor in most respects, subject to the notable exception of exposures to central governments, fulfils a similar purpose to the leverage ratio requirement and (b) that the Basel I floor applies up to and including 2017 for those banks that use internal models for credit risk are further factors that contribute to there being insufficient grounds for bringing forward the introduction of a leverage ratio requirement for Swedish banks.

The banks that use internal models are covered by the 'Basel I floor' up to and including 2017. Read more about the floor in the memorandum entitled *Finansinspektionens hantering av Basel I-golvet* [English translation available, Finansinspektionen's approach to the Basel I floor].<sup>42</sup>

Basel I is a simplified form of the standardised approach, and the floor is devised so that the total capital requirement may never fall below 80 per cent of the capital requirement according to Basel I. It should be noted that the capital requirement according to Basel I was eight per cent of the risk-weighted assets and not the current figure of 10.5 to 13.5 per cent (in Pillar 1).

The overall analysis reported above as regards the standardised approach's similarities to a leverage ratio requirement also applies in broad terms to the leverage ratio requirement's similarity to the Basel I floor. According to Basel I, no exposure, besides certain exposures to central governments and cash, can be attributed a risk weight of less than 20 per cent (note, however, the

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<sup>41</sup> Nor are firms without substantial assets affected in practice by a leverage ratio, as this sets capital requirements in relation to assets.

<sup>42</sup> *Finansinspektionens hantering av Basel I-golvet* [English translation available, Finansinspektionen's approach to the Basel I floor], published at *fi.se* on 18 March 2014 (FI Ref. 13-13990)

difference in capital requirements compared with the current rules as mentioned above, which means that the same risk weight involves a lower total capital requirement). Nor is it permitted to make any adjustments to exposure amounts to take account of financial collateral.

In this context, it is of interest to note that FI's analyses show that the total capital requirement in Swedish kronor according to the Basel I floor end up tangibly close to a leverage ratio requirement of three per cent, for those groups covered by the Basel I floor. However, one important difference between the capital requirement according to the Basel I floor and the leverage ratio requirement is that the Basel I floor may be met by Tier 2 capital; that is, capital that absorbs losses at a later point than Common Equity Tier 1 capital and Additional Tier 1 capital.

## Appendix 6 – The leverage ratio at Swedish firms

### Introduction and summary analysis

The current leverage ratios at different kinds of relevant Swedish firms are reported in this appendix. The analysis is based on figures reported to FI as of Quarter 2, 2014 and the calculations are made in accordance with the current definition contained in the Capital Requirements Regulation, for all firms except the four major banks. The figures for the four major banks relate to Quarter 3, 2014 and the leverage ratio has been calculated according to the definition contained in the Commission Implementing Regulation of 10 October.

The analysis shows that all of the firms – with the exception of Kommuninvest, which is commented on separately later in this section – have a leverage ratio that exceeds three per cent.<sup>43</sup> Five of the ten largest firms and all other firms (hereafter referred to as ‘small firms’) have a leverage ratio of more than four per cent. However, none of the ten largest firms currently has a leverage ratio of more than five per cent. However, all the small firms do.

### The ten largest firms

#### *The major banks*

The four major banks have an average leverage ratio of 4.2 per cent at consolidated level. None of the banks has a leverage ratio of less than three per cent.

FI has reviewed the level at which the leverage ratio involves a capital requirement in Swedish kronor for any of the major banks that is higher than the total risk-weighted capital requirement and thereby takes effect as the binding capital restriction. This occurs at a level of four per cent and irrespective of whether the requirement is to be met by Tier 1 capital or Common Equity Tier 1 capital. The conclusion is the same even if the comparison includes the capital requirement according to the Basel I floor, which notably applies to total own funds.

There is a significant difference between the banks’ current capital and the capital requirement that a leverage ratio requirement of five per cent and above would involve; see Table 6.1 below. At this level of leverage ratio requirement, the four major banks need to in total increase their Common Equity Tier 1 or Tier 1 capital by SEK 146 and 98 billion respectively, given their balance sheets for Quarter 3, 2014. A difference also arises to some extent between current capital and the capital requirement for a four-per-cent leverage ratio requirement while there is no difference for a three-per-cent leverage ratio requirement.

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<sup>43</sup> This conclusion is based on the leverage ratio being calculated on the basis of the last month of the quarter according to the definition contained in the Commission Implementing Regulation of 10 October.



TABLE 6.1. Capital deficit as of Quarter 3, 2014 (SEK bn)

	4%	5%	6%
Common Equity Tier 1 capital deficit	-9.8	-147.0	-274.5
Tier 1 capital deficit	-1.9	-97.9	-225.4

*Note: The table shows the capital deficit at the four major banks for various levels of leverage ratio requirement and for different types of capital.*

### The six other large firms

The six other large firms include SBAB, Skandiabanken, Länsförsäkringar, SEK, Landshypotek and Kommuninvest. The five other (six other excluding Kommuninvest) large firms have on average a leverage ratio of 3.77 per cent at consolidated level.

The level at which a leverage ratio requirement comprises the binding capital restriction is lower on average for these five other firms than for the major banks. When comparing the total Common Equity Tier 1 capital requirement according to Pillar 1 and Pillar 2 with a leverage ratio requirement, the leverage ratio would become the binding capital restriction for four out of the five other firms at three per cent and for the fifth firm at four per cent. However, the Basel I floor currently constitutes the binding capital restriction for some of these firms. The conclusion is different if the comparison includes the capital requirement according to the Basel I floor, which however is a requirement for total own funds. In this case, the leverage ratio would only constitute the binding capital restriction at a level of three per cent for one of the five firms. If the leverage ratio requirement is to be met by Tier 1 capital instead, the leverage ratio becomes the governing capital requirement for two of the five other firms at three per cent and for three at four per cent.

The difference between the current capital and the capital requirement that higher levels of the leverage ratio requirement result in also becomes significant for the five other firms; see Table 6.2 below. At a requirement level of five per cent leverage ratio, the five other firms together need to increase their Common Equity Tier 1 capital or Tier 1 capital by SEK 17 and 14 billion respectively in order to just meet the requirement.

TABLE 6.2. Capital deficit as of Quarter 2, 2014 (SEK bn)

	4%	5%	6%
Common Equity Tier 1 capital deficit	-7.0	-16.8	-28.5
Tier 1 capital deficit	-4.6	-14.4	-26.1

*Note: Capital deficit for the five other largest firms (excluding Kommuninvest) for various levels of leverage ratio requirement and for different types of capital.*

The situation for Kommuninvest is special as it primarily lends to municipal authorities and county councils. These exposures receive the same risk weight as exposures to national governments in the event that there are no differences in risk on account of their taxation powers. In Sweden this means that

exposures to municipal authorities and county councils receive a zero-per-cent risk weight. Kommuninvest's relatively low leverage ratio of 0.82 per cent (according to Kommuninvest's interim report as of 30 June) is thus a result of its business model, which means that the Tier 1 capital is low in relation to the size of its assets according to the leverage ratio.

Firms with an operation that is similar to Kommuninvest such as, for example, MuniFin in Finland and Kommunalbanken in Norway, also have leverage ratios of less than three per cent.<sup>44</sup> A further investigation needs to be conducted into whether, and if so at what level, Kommuninvest and other similar European firms are to be subject to a leverage ratio requirement. Kommuninvest states on its website that the firm's preparations prior to the forthcoming leverage ratio requirement include, among other things, a decision concerning increased deposits for members and also an issuance of own funds instruments in accordance with the new regulatory requirements. Kommuninvest also states that the firm assumes that it will achieve a leverage ratio of 1.5 per cent.<sup>45</sup>

### The small firms

The small firms consistently have a higher leverage ratio than the ten largest firms. Not one of these firms has a leverage ratio of less than five per cent and only one firm has a leverage ratio of less than six per cent.

TABLE 6.3. Leverage ratio at small Swedish firms as of Quarter 2, 2014 (%)

	Limited banking companies	Credit market companies	Savings banks	Investment firms
Minimum	6.2	6.1	5.1	9.3
Maximum	52.3	49.1	23.3	89.4
Average	14.3	14.9	11.5	51.7
Median	10.2	10.7	11.2	46.0

*Note: Cooperative banks are also included in the 'savings banks' group*

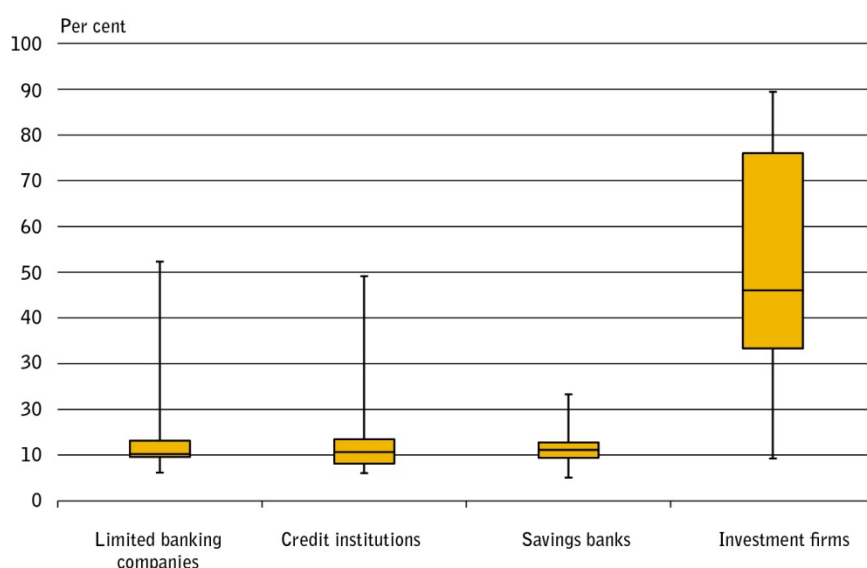
Diagram 6.1 shows the spread of leverage ratios for the small firms for each business category. The lines above the boxes in the diagram represent leverage ratios from the third quartile to the highest value, while the lines below the boxes represent leverage ratios from the first quartile to the lowest value. The line that cuts through the boxes is the median value for each business category.

<sup>44</sup> [www.kommuninvest.se/1.0.1.0/815/download\\_3096.php](http://www.kommuninvest.se/1.0.1.0/815/download_3096.php)

<sup>45</sup> Information obtained from [kommuninvest.se](http://www.kommuninvest.se) website on 12 November 2014.

<http://www.kommuninvest.se/sv/nyheter/kommuninvest-vidtar-atgaerder-infoer-kommande-krav-pa-bruttosoliditet.php>

## 6.1 Leverage ratio in Swedish small firms as of Quarter 2, 2014



Note: Cooperative banks are also included in the 'savings banks' group

## International comparison

There is no access to detailed data from other countries, as the requirements for disclosing leverage ratios do not enter into force before 2015. A comparison between the average for EU countries and the average for Sweden for Group 1 banks<sup>46</sup> and Group 2 banks<sup>47</sup> shows that Swedish Group 1 banks (the four major banks) have a higher leverage ratio than the EU average, while Swedish Group 2 banks (in this case the six other large banks, with the exception of Kommuninvest) have a leverage ratio below the EU average.<sup>48</sup> It is difficult to say with any certainty what this is due to. However, it is likely to partly reflect the higher capital requirements that FI allocated to the major Swedish banks owing to their systemic importance.<sup>49</sup>

TABLE 6.4. Average leverage ratio for Group 1 and Group 2 banks in the EU and Sweden (%)

	EU average	Swedish average
Group 1	3.7	4.2
Group 2	4.5	3.8

Source: EBA<sup>50</sup> and FI

<sup>46</sup> In the EU average, the definition of Group 1 banks are all banks with Tier 1 capital exceeding EUR 3 billion and that are internationally active.

<sup>47</sup> In the EU average, the definition of these banks are all banks that are not included in Group 1.

<sup>48</sup> The European Banking Authority states that the representivity in the data material for Group 1 banks is good, while the representivity for Group 2 banks is not ensured.

<sup>49</sup> See FI's memorandum *Kapitalkrav för svenska banker* [English translation available, Capital requirements for Swedish banks], published on 10 September on *fi.se*.

<sup>50</sup> *Basel III monitoring exercise*, European Banking Authority, September 2014.

<http://www.eba.europa.eu/risk-analysis-and-data/quantitative-impact-study/basel-iii-monitoring-exercise>

*Note: The figures for EU relate to the leverage ratio for Quarter 4, 2013 assuming a fully implemented Basel III agreement and are calculated according to the Basel Committee's latest (January 2014) definition of the leverage ratio. The figures for Sweden for Group 1 banks relate to Quarter 3 2014 and are calculated according to the Commission Implementing Regulation from October 2014 which, among other things, implements the Basel Committee's definition from January 2014. The figures for Sweden for Group 2 banks relate to Quarter 2 2014 and are calculated according to the current leverage ratio definition in the Capital Requirements Regulation.*

## Comparative risk weights

Comparative risk weights for a leverage requirement of three per cent Common Equity Tier 1 capital and also the banks' actual average risk weights are shown in Table 6.5. The table indicates that comparative risk weights (the critical level for the average risk weight over which the risk-weighted capital adequacy requirement constitutes the binding capital restriction) are 25 per cent for major banks and 43 per cent for other banks, at a leverage ratio requirement of three per cent which is to be met by Common Equity Tier 1 capital alone. (Compare also comparative risk weights if the requirement may be met by Tier 1 Capital in Appendix 4.) The average volume-weighted risk weight for the nine largest Swedish firms (Kommuninvest actually belongs to this group of usually ten firms, but has been eliminated for this calculation) is around 30 per cent, considering the risk weight floor of 25 per cent. There is no difference between the average for the major banks and the medium-sized banks.

TABLE 6.5. Comparative risk weight and actual average risk weight (%)

	Comparative weight	Average risk weight
Major banks	25	30
The five other large banks	43	30

*Note: Comparative risk weight for a leverage ratio requirement of three per cent in Common Equity Tier 1 capital and actual average risk weight for the major banks and the five other large banks respectively. The calculations are based on data as of Quarter 2 2014 and the average risk weight is adjusted to include the effect of the Swedish risk weight floor of 25 per cent. The comparative risk weight is calculated using a Common Equity Tier 1 capital requirement of twelve per cent for major banks and of seven per cent for other banks and also without taking account of the fact that the exposure amount definition may differ slightly in the leverage ratio compared with capital adequacy ratio.*

The analysis shows that a three-per-cent leverage ratio requirement for Common Equity Tier 1 capital for major banks means that the major banks' average actual risk weight of 30 per cent exceeds the critical level. This critical level lies at 25 per cent for the major banks.

On the other hand, the banks' average 30-per-cent risk weight for the five other large banks falls below the critical level. This is because the critical risk weight level is higher (more precisely 43 per cent) for those banks that do not have a capital requirement for systemic risks under the risk-weighted capital adequacy framework. This result corresponds with the results presented earlier in this appendix. They show that when the total Common Equity Tier 1 capital

requirement according to Pillar 1 and Pillar 2 is compared with the leverage ratio requirement, the leverage ratio will have already become the binding capital restriction for four out of the five other firms at three per cent. It is ultimately only because the Basel I floor is in place that the leverage ratio requirement comprises the binding capital restriction for only one of the five banks. This might indicate that the leverage ratio requirement should be set at less than three per cent for those banks that do not carry a supplement for systemic risk (besides systemic risk in mortgages). However, this discussion only arises if the floor for internal models, which has so far taken the form of a Basel I floor, disappears or is reduced significantly.

## Appendix 7 – The leverage ratio as a supervisory tool

The function of the leverage ratio may extend beyond constituting a binding capital requirement. For example, it provides both market participants and FI with important information about a bank's capital strength as a supplement to the information provided by the risk-weighted capital measure. FI currently already has several different ways of monitoring the banks' leverage ratios as part of the authority's supervision.

Information about the banks' leverage ratios has been included in the quarterly reporting to FI since the first quarter of 2014. FI will, among other things, use this information for quarterly quantitative follow-ups of all banks. This gives FI's Supervision Department an opportunity to monitor major changes in important key ratios, such as the leverage ratio, between quarters. The overall automated follow-up may also provide support for FI's prioritisation of the authority's supervisory resources as soon as there is a tool for identifying more risky banks.

FI is obligated by law to conduct a review and evaluation of all banks covered by the capital adequacy framework. This is done within the framework of the rules often referred to as Pillar 2.<sup>51</sup> The supervisory review and evaluation process includes an assessment of all risks material to the bank. This includes FI assessing the individual banks' risk of having excessive leverage considering the bank's business model. FI's specific obligation to assess the risk of excessive leverage is indicated by Article 97 of the Capital Adequacy Directive.<sup>52</sup> The most significant resources for the ten largest banks are prioritised in FI's supervisory review and evaluation process, for which a thorough and comprehensive risk assessment is carried out at least annually.

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<sup>51</sup> For an explanation of the various pillars in the capital adequacy framework and primarily Pillar 2, see memorandum entitled *Kapitalkrav för svenska banker* [English translation available, Capital requirements for Swedish banks], published on *fi.se* on 10 September 2014, FI Ref.14-6258.

<sup>52</sup> Section 9 of the Special Supervision and Capital Buffers Ordinance (2014:993) indicates that FI in its supervision is to monitor the provisions concerning the supervisory review and evaluation process contained in Articles 97 to 101 of the Capital Adequacy Directive.

## Appendix 8 – An international overview

Most EU countries have said nothing other than that they are awaiting the forthcoming EU regulation of the leverage ratio. However, there are a couple of exceptions:

**The United Kingdom** intends to mandate its Financial Policy Committee (FPC) to determine the design of a leverage ratio requirement. FPC recently published its opinion about how the requirement should be devised.<sup>53</sup> FPC states that a minimum requirement of a three-per-cent leverage ratio at consolidated level should start to apply to the largest banking groups as soon as practically possible. In addition to this, a buffer requirement will be phased in for systemically important banks. The buffer requirement will be no more than 1.05 per cent – which involves a total maximum leverage ratio requirement of 4.05 per cent for the most systemically important banks – and will be set in relation to the size of the systemically important supplement in the risk-weighted capital adequacy framework. Seventy-five per cent of the minimum requirement and the entire buffer requirement will be met by Common Equity Tier 1 capital. If the countercyclical capital buffer is activated, a countercyclical buffer will also be added in addition to the leverage ratio requirement. The United Kingdom’s countercyclical capital buffer is currently set at zero.

**The Netherlands.** The Dutch Ministry of Finance recommended in August 2013 that the country’s systemically important banks should have a leverage ratio of four per cent.<sup>54</sup> However, no decision has been made about regulation.

The following are examples of other countries that have introduced or plan to introduce the leverage ratio requirement:

**Switzerland** has decided that the country’s systemically important banks are to be covered by a leverage ratio requirement of between 3.1 and 4.56 per cent from 2019; the level in excess of three per cent depends on the banks risk-weighted capital adequacy requirement.<sup>55</sup> The requirement is split into a minimum requirement and a buffer requirement. The requirement may partially be met by both Tier 1 and Tier 2 capital.

**The United States** has had a leverage ratio requirement since 1981, but with a more favourable definition of the exposure amount for, among others, capital market driven-transactions. They have now decided to increase the requirement

<sup>53</sup> *The Financial Policy Committee’s review of the leverage ratio*, Bank of England, October 2014. <http://www.bankofengland.co.uk/financialstability/Pages/fpc/fscp.aspx>

<sup>54</sup> *Kabinetsvisie Nederlandse Bankensector* [The Cabinet’s Vision for the Dutch Banking Sector], Dutch Ministry of Finance, August 2013. <http://www.rijksoverheid.nl/documenten-en-publicaties/kamerstukken/2013/08/23/kabinetsvisie-nederlandse-bankensector.html>

<sup>55</sup> *Verordnung über die Eigenmittel und Risikoverteilung für Banken und Effekthändler* [Regulation on Capital Adequacy and Risk Diversification for Banks and Securities Dealers] SR 952.03, June 2012. <https://www.finma.ch/d/regulierung/gesetze/Documents/erv-952.03-old-d.pdf>

<sup>55</sup> <http://www.federalreserve.gov/newsevents/press/bcreg/20140408a.htm>

to five per cent for the most systemically important banks and to six per cent for ‘insured depository institutions’ and also to adapt the definition to that provided by the Basel Committee. The levels apply from 2018. The requirement may be fully met by Tier 1 capital.<sup>56</sup>

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<sup>56</sup> <http://www.federalreserve.gov/newsevents/press/bcreg/20140408a.htm>



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