

MEMORANDUM



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Finansinspektionen stress tests major Swedish banks

Finansinspektionen's (FI) assessment of the results of the stress test conducted in the third quarter of 2012 is that the major Swedish banks are well equipped to withstand high credit losses coming from a severe adverse scenario. Furthermore banks should have good capital preparedness, even for improbable scenarios. Good capital preparedness means that the banks should have concrete plans for improving their capital adequacy within a reasonable period of time. FI believes that the major Swedish banks currently possess this level of preparedness.

Stress tests are one of the tools employed by FI in its supervision of banks. FI carries out ongoing tests to assess the banks' ability to withstand various negative scenarios. Stress tests are also used in the annual assessment of the banks' total capital. FI most recently published the results of the stress tests in November 2011.

The following memorandum presents the methodology and results of the most recent stress test that was performed on the major banks (Nordea, SEB, Handelsbanken and Swedbank). Finansinspektionen uses a simplified, standardised method that is different from the methods the banks use when conducting their own stress tests. The scenario does not make any assumptions about a specific macro scenario. Instead, the intention is to illustrate the effects of a sharp decline in the economy and thereby demonstrate its effect on banks' profitability. Weaker results in the scenario are primarily caused by large credit losses within all segments of the banks' lending.

FI believes that the magnitude of the decline in the scenario is improbable but not impossible. The stress test results indicate that banks have strong resilience towards an adverse hypothetical scenario with high credit losses and reduced earnings capacity. However, if this scenario was to be combined with deductions, as we know them today, of future regulatory changes some banks may not have adequate capitalisation to meet the proposed regulatory buffer requirements¹.

¹Capital conservation buffer and systemic risk buffer proposed to be implemented during the period between 2013 and 2015.

Changes to the method

Some changes have been made to the method since last year². In an effort to improve the method, the stress test now includes (in addition to Basel 3) the coming changes to the regulation called IAS19³. These changes will have an impact on all banks capital levels. One additional change relates to migrations effects, where FI distinguishes between banks in its assumptions of migrations. Which means that risk weighted assets of banks will evolve differently, and therefor capital levels will vary as well.⁴

The results of the tests are consistently reported as the banks' common equity Tier 1 capital ratios accordingly to current regulation, without Basel 1 transitional rules.

General methodology

FI's method differs from the stress tests conducted by e.g. the EBA and the banks themselves in one important aspect. FI, like the Riksbank, conducts its stress tests on public information and does not take into account bank-specific characteristics, such as earnings stability or credit quality in a certain segment. In short, both authorities assume a certain fall in earnings and a certain development in credit losses in various segments of different markets and simulate the effects of these changes on the banks' financial positions. The advantage of such a standardised method is that it is easier to draw comparisons between the banks. The disadvantage, of course, is that the method does not contain more detailed information about, for example, the quality of each bank's credit portfolio or the various mitigating actions banks may undertake to strengthen their capitalisation.

In its stress test, FI calculates the banks' resilience in a three-year scenario that assumes a sharp fall in the all areas of the economy. In the scenario, the banks suffer from lower earnings and higher credit losses, which have a negative impact on capitalisation. The scenario assumes at the same time that lending increases by 5 per cent during the first year (no new lending in the following years) and that the capital requirement for credit risk pursuant to internal models increases by 7,5 per cent (on average) during the first and second year due to negative migration effects (higher risk weights). It is assumed that the banks will distribute 40 per cent of their net profit if they report a net profit and nothing if they report a loss.

² Different from last year is that preference shares are included in calculation of common equity Tier 1 capital. As the amount of loss-absorbing capital is not affected the inclusion makes the results more comparative. It is also assumed that any preference shares will be transformed into ordinary shares during the stress test period.

³ IAS19 involves a change in accounting methods for pension liabilities of defined benefit pension plans from 1st of January 2013. Any shortfall between pension commitments and assets affects banks capital. The deemed effect on capital steams from the second quarter of 2012 and is used as a proxy for future deductions.

⁴ For more information on migration assumptions see appendix to this MEMO.

The stress test assesses the ability of the four major banks to handle a very negative economic scenario.⁵ The test focuses on the banks' credit risks. Of the capital requirements for the major Swedish banks, typically 85-90 per cent originates from credit risks. The capital requirement for market risks and operational risks are assumed to remain unchanged during the period of the scenario.⁶

Information about the banks' credit portfolios is based on the banks' published quarterly reports for the second quarter of 2012. FI then divided the banks' credit portfolios into 41 different exposure classes and assigned different credit loss levels to each class. No differences were attributed to the credit losses of the banks within each exposure class. This means that differences in credit losses for the four banks in the scenario can be entirely traced back to differences in the composition of the loan portfolios.

Earning assumptions were based on the SME Direkt consensus forecasts for the third and fourth quarters of 2012 for each bank. For the period 2013 to 2015, a deduction of 10 % has been made to expected earnings before credit losses for the whole of 2012.

Results

In the scenario, the total credit losses are in line with the three year results before credit losses for the four banks in the sample. At the same time risk weighted assets are increasing which leads to a reduction in capital levels of between 1,1 and 2,8 per cent per bank during the stress tests period.

In the scenario, the credit losses are high in all industries and regions. Compared to today, this applies in particular to commercial real estate and mortgage lending. Even if the credit losses are generally high compared to current levels, they are not as high the levels measured during the crisis in the 1990s. This also applies to the Baltic countries which in the scenario continue to report relatively large credit losses, but the loss levels are considered to be lower than those actually achieved in 2009.

The high credit losses in the scenario linked to mortgages are based on an unfavourable development in disposable income and unemployment combined with large expenses for interest rates and amortisation. If economic growth is weak at the same time as unemployment and inflation increase, a situation that would increase debt servicing costs and may put downward pressure on house prices. Some households which in recent years took on mortgages with high loan-to-value ratios could find themselves in a situation where the size of the loan exceeds the value of the property. If these households are affected by unemployment, they could become insolvent, resulting in credit losses.⁷

⁵ The assumptions are described in greater detail in the Appendix.

⁶ It is often reasonable to exclude market risks when stress tests are conducted over a longer period of time since market positions can be hedged or closed in the shorter term.

⁷ Banks have a claim on borrowers even after the security is realised. However, in a normal case, the banks make provisions for what is left of the claim after the security is realised. Outstanding amounts can be recovered at a later date.

However, even in the event of this kind of scenario, the banks' credit losses mostly come from lending to companies and real estate firms.

Table 1: Credit loss levels

Credit loss levels	2012*	2013	2014	2015	Total
Nordea	0,24%	1,33%	1,33%	1,14%	4,12%
Handelsbanken	0,07%	0,99%	0,99%	0,86%	2,95%
Swedbank	0,08%	1,19%	1,17%	0,96%	3,46%
SEB	0,10%	1,26%	1,25%	1,07%	3,73%
Total (average)	0,12%	1,19%	1,19%	1,01%	3,56%

*based on actual on results in q1-2 and estimates for q.3-4 2012

The credit losses in the scenario are significantly higher than the major banks' actual losses during the last years⁸ and total approximately SEK 270 billion for the four major banks between 2013 and 2015 which is in line the outcome of last year's stress test. This can be compared to earnings during the same period of more than SEK 265 billion.⁹ At the same time risk weighted assets are increasing which leads to a reduction in capital levels of between 1,1 and 2,8 per cent during the stress test period.

Table 2: Profit with change in equity

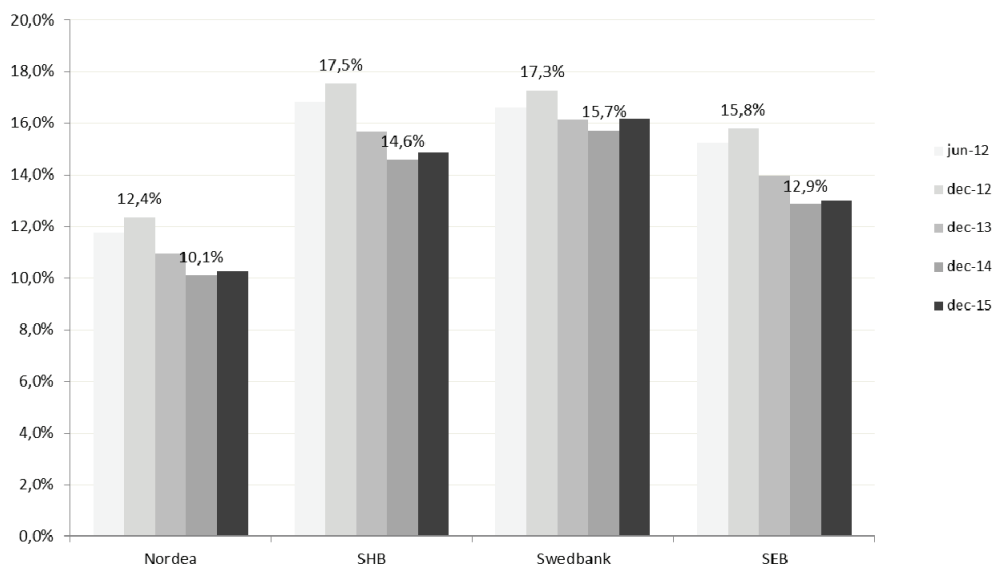
SEK Million, 2013-2015	Nordea	Handelsbanken	Swedbank	SEB
Profit before credit losses	119 665	52 032	50 093	44 285
Credit losses	124 669	50 128	45 104	48 490
Tax	663	567	1 155	83
Profit after tax	-5 668	1 337	3 834	-4 288
Dividends	766	686	1 533	102
Change in equity	-6 434	650	2 300	-4 390

With risk weighted assets and the capital base according to Basel 2,5 rules, the common equity tier 1 capital ratios (CET1) would fall to 10,1 % at their lowest (10,3 in 2015).

⁸ Total losses for the four Swedish banks over the last three year period amounted to approximately SEK 67 billion (H1 2009 through H2 2012).

⁹ See Table 3 for a detailed profit and loss statement. During the whole period 2012-2015 total credit losses amount to SEK 280 bn and profit before credit losses amount to SEK 365 Bn.

Diagram 1. Banks CET1 capital ratios Basel 2,5

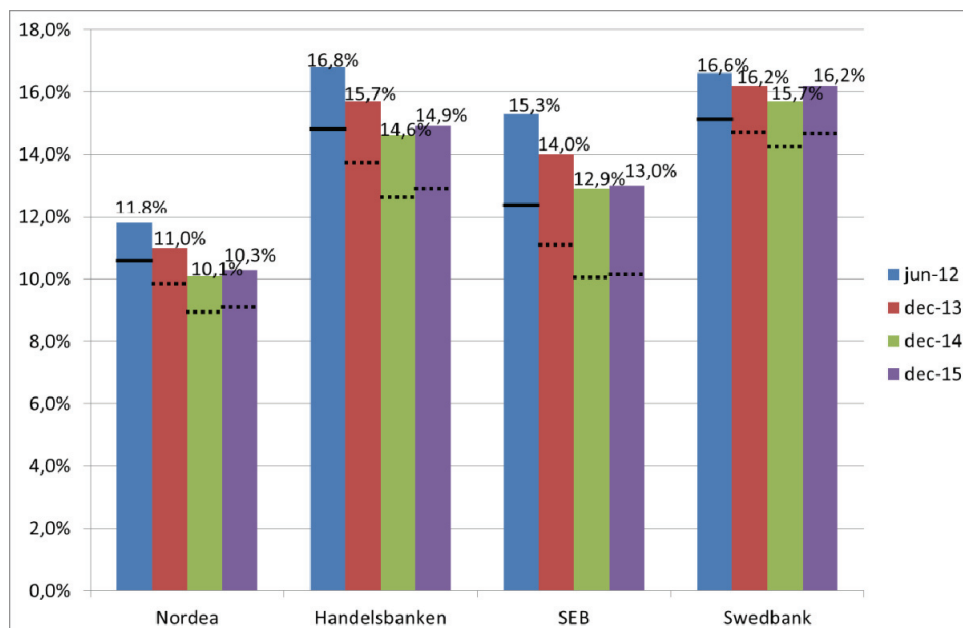


Common equity Tier 1 capital ratios Basel 3

During the stress test period (2013 through 2015) several regulatory changes will occur, Basel 3 och IAS19¹⁰, which will have an impact on banks' capital ratios. The effect, between 1,2 och 2,9 per cent, on capital ratios is estimated from the reported effects as of the half year 2012. This may be different from the actual effects banks will report in 2013 – 2015, as they are subject to several factors such as the composition of the balance sheet and the level of interest rates at the time of calculation.

¹⁰ IAS19 changes in accounting methods for pension liabilities of employee defined benefit pension plans

Diagram 2. Common equity Tier 1 capital ratios, current regulation without transitional rules, and estimates under Basel III



Note: The dotted lines in the diagram reflect the effects of the stress test when the estimated effects of planned regulatory changes are included.

The stress test results indicate that banks have strong resilience towards an adverse hypothetical scenario with high credit losses and reduced earnings capacity. However, if this scenario was to be combined with estimates of future regulatory changes, as we know them today, some banks may not have adequate capitalisation to meet the proposed regulatory buffer requirements. This may include restrictions on dividends and bonuses, according to the proposed regulation.

It is FI's assessment that all four banks are making good progress towards meeting the new higher capital requirements, especially since they have good underlying earnings capacity and good capital preparedness. The four major banks are already working with forward looking capital planning, to ensure that they will meet new higher capital requirements when they come into effect. FI closely monitors the fulfilment of the new requirements through an on-going dialog with the banks.

Appendix

The assumptions made by FI with respect to the banks' earnings, credit portfolios, lending growth, credit losses and other factors that affect the results of the stress test are described in more detail below.

Capital adequacy regulations

According to the provisions set out in Basel 2 regulations, banks should have own funds corresponding to eight per cent of the calculated risk-weighted assets for credit risks, market risks and operational risks (Pillar 1 risks). At least half of this capital, i.e. four per cent of the risk-weighted assets, should be Tier 1 capital. In addition, the banks should hold capital for other risks in their organisation (Pillar 2). Examples of these types of risks include business risks, insurance risks and concentration risks. The banks should also keep a buffer in addition to the capital requirement for the aforementioned risks.

Exposure class
Sweden household mortgage
Sweden household other
Sweden corporates low
Sweden corporates medium
Sweden corporates high
Sweden commercial real estate
Denmark household mortgage
Denmark household other
Denmark corporates low
Denmark corporates medium
Denmark corporates high
Denmark commercial real estate
Finland household mortgage
Finland household other
Finland corporates low
Finland corporates medium
Finland corporates high
Finland commercial real estate
Norway household mortgage
Norway household other
Norway corporates low
Norway corporates medium
Norway corporates high
Norway commercial real estate
Estonia - household
- corporates
- real estate companies
Latvia - household
- corporates
- real estate companies
Lithuania - household
- corporates
- real estate companies
Russia/Poland
Germany household
Germany corporates
Ukraine
United Kingdom
Credit institutions
Other
Off balance

The proposed higher capital requirements for Swedish major banks¹¹ means that banks should have a minimum of 10 per cent common equity Tier 1 capital in 2013 and 12 per cent in 2015. This is needed to ensure that the capital conservation buffer and capital add-on for systemically important banks is met in full. In relation to the proposed minimum requirement in Basel 3 this constitutes an add-on of five percentage points already in 2015, compared to the Basel committees proposed minimum of 7 per cent¹² with a face-in period until 2019.

Exposure classes in 2012

The credit exposure of the major banks is divided into 41 different classes. A credit loss level is assigned to each class for 2013, 2014 and 2015. For exposures to corporates, it is assumed that the credit losses for each type of company will depend on the industry. The industries have been divided into low, medium and high risk in order to take this into account.

¹¹ <http://www.fi.se/Folder-EN/Startpage/Publications/Miscellaneous/Listan/Finansinspektionen-would-like-higher-capital-requirements-for-major-Swedish-banks/>

¹² Without the add-on for systematically important banks.

Assumptions about earnings

The banks' earnings during the second half of 2012 are assumed to follow the SME Direct consensus forecast. These predictions are the average of around 15 forecasts by analysts about how the banks' profits before credit losses will develop.

In the scenario, earnings are expected to be lower than the market's expectations. This is mainly due to a lower activity level, falling assets prices and higher funding costs, which will result in a fall in net income. The lower earnings have been created using a standard simulation in which the income level before credit losses for the period 2013 to 2015 is set as the expected level for the full year 2012, with a deduction of 10 per cent.

Credit loss assumptions for mortgages

In the scenario, credit losses from mortgages have been assumed to increase due to a significant drop in house prices from higher unemployment and a parallel rise debt servicing costs. The majority of these credit losses occur in the scenario during the period 2013-2014.

Mortgages are the largest individual exposure class, amounting (in the second quarter of 2012) to SEK 2,900 billion, or more than 35 per cent of the major banks' total lending. Assumptions about the high loss levels for mortgages will therefore have a significant impact on the outcome of the stress test.

Assumptions about lending growth

In addition to the size of new lending, the banks' total lending is determined at all times by the defaulted stock in the previous period. The higher the number of defaults, the lower the credit volume will be in the next period. The defaulted stock was estimated by dividing the credit loss assumption for each exposure class by 0.5. This means that the bank is assumed to recoup 50 per cent of an exposure amount that defaults at any time.

Example:

$$\text{Total lending mortgages Sweden Q3 2012} = \text{Total lending mortgages Sweden Q2 2012} + \text{new lending mortgages Sweden Q3 2012} - (\text{credit losses mortgages Sweden Q2 2012} / 0.5)$$

Although the scenario assumes low levels of new lending, the average risk weight goes up, leading to an increase in risk-weighted assets and consequently an increase in the banks' capital requirements. However, the effect on risk-weighted assets of high loan losses is greater than the effect of an increase in risk weights.

Migrations in the banks' rating systems

In addition to the change in lending growth, the banks' capital requirements are also affected by potential migrations within their internal rating systems. Migrations mean that exposures are moved between different risk classes, which affect the banks' capital requirements. The banks use internal rating

models to assign PD¹³ and LGD¹⁴ estimates for their counterparties. The choice of rating methodology thereby affects the banks' capital requirements.

Change to the banks' capital requirements due to migrations

Migrations	2013	2014	2015
All banks (average)	7,5%	7,5%	0,0%

FI does apply different migration assumptions to each bank, which means that some banks are affected more than others by the assumed migration effect

Here is a list of the factors that affect the constituent parts of capital adequacy, i.e. own funds and the capital requirement.

Affects own funds

New share issues	Depending on the quality of the capital that is collected, affects common equity Tier 1 capital, Tier 1 capital and own funds.
Profit after tax	Impacts retained earnings.
Dividends	Affects how much of the profit goes to retained earnings.
Credit losses	Affects what the profit will be.

Affects the capital requirement

Lending volume	Increased lending results in an increase in the capital requirement, all else being equal.
Migrations in the rating systems	A downturn in the economic climate or other changes specific to counterparties can increase the risk of a counterparty going into liquidation, which also increases the capital requirement. The effect of this depends on the through-the-cycle/point-in-time levels in the bank's rating systems.
Roll-out of portfolios	In general the capital requirement falls for portfolios whose capital requirement is calculated using internal ratings models rather than the standardised approach. Most banks still roll out portfolios.
Credit losses (default)	Exposures that have defaulted must be covered by reserves and not by capital. This means that the capital requirement falls when several exposures default, all else being equal. However, the negative effect of credit losses on own funds is greater than the positive effect on the capital requirement.
Risk weight in new lending	If new lending has a lower risk weight than the risk weight in the existing portfolio and this new lending only replaces the lending that has matured, the capital requirement will fall.

¹³ *Probability of default*

¹⁴ *Loss given default*

A fall in lending growth in the banks has a positive effect on capital adequacy. The increase in lending in the past few years has to a large extent occurred within exposures with a relatively low risk weight, for example mortgages. The banks also use internal ratings models to calculate the capital requirement in an increasing number of portfolios, which generally leads to a lower capital requirement compared to the standardized method.

Other assumptions

It is assumed that the banks will distribute 40 per cent of their net profit (given a profit) to their shareholders for all three years.

Tax is calculated as each individual bank's average (normalised) tax rate over the previous three years. No loss carryforwards were taken into consideration during the exercise nor was the proposed tax rate cut.

Both profits and losses are assumed to have a direct effect on the bank's common equity Tier 1 capital. Tier 2 capital is assumed not to have the ability to absorb losses.

It is assumed that no portfolios were rolled out during the scenario.

Table 3: Simplified profit and loss statement

Profit and loss statement SEK Million	Nordea					SHB					Swedbank					SEB				
	2012*	2013	2014	2015	2012*	2013	2014	2015	2012*	2013	2014	2015	2012*	2013	2014	2015	2012*	2013	2014	2015
Profit before credit losses	44 320	39 888	39 888	39 888	19 271	17 344	17 344	17 344	18 553	16 698	16 698	16 698	16 402	14 762	14 762	14 762	16 402	14 762	14 762	14 762
Credit losses	7 983	43 475	43 885	37 310	1 202	17 353	17 642	15 133	1 112	16 058	16 037	13 009	1 262	16 982	17 085	14 423	1 262	16 982	17 085	14 423
Tax	8 843	-	-	663	4 623	18	-	549	4 206	148	153	854	3 454	-	-	83	3 454	-	-	83
Profit after tax	27 494	-3 586	-3 996	1 915	13 446	-27	-298	1 662	13 235	492	508	2 834	11 686	-2 220	-2 323	256	11 686	-2 220	-2 323	256
Dividends	10 297	-	-	766	6 388	22	-	665	6 484	197	203	1 134	4 322	-	-	102	4 322	-	-	102
Change in equity	17 197	-3 586	-3 996	1 149	7 058	-48	-298	997	6 751	295	305	1 701	7 364	-2 220	-2 323	154	7 364	-2 220	-2 323	154

*based on actual on results in q1-2 and estimates for q3-4 2012