M E M O R A N D U M

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Finansinspektionen's stress tests of major Swedish banks [1]

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 supervisory review and evaluation process of the banks. FI published the most recent results of its own stress tests in November 2012.

Finansinspektionen's (FI's) internal stress test carried out during the third quarter of 2013 confirms that the major Swedish banks are well equipped to face high credit losses even in a scenario in which there is a sharp economic downturn. The result of the stress test shows that two banks would fall below the planned buffer requirement. Being in the buffer zone could in the coming regulation could mean that restrictions are put on dividend and bonus payments. This means that two of the banks would need to maintain the current capitalization to be able to withstand a sharp economic downturn. FI:s view is that the banks in question would be able to return to acceptable capital levels quickly due to good underlying earnings. For further information about banks capitalization please see the section on stress tests and sensitivity analysis in the Risk report.

In order to be prepared, the banks are also required to be able to implement measures which can improve the capital adequacy when needed. FI believes that the major Swedish banks currently possess this level of preparedness.

This memorandum presents the methodology and results of the most recent stress test that was carried out on the major banks (Nordea, SEB, Handelsbanken and Swedbank). FI uses a simplified, standardised method that is different than 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 the conditions for the banks' profitability. Weaker results in the scenario are primarily caused by large credit losses within all segments of the banks' lending.

[1] This year in addition to the normal stress test FI has also performed a sensitivity analysis of the capitalisation of the banks with assumptions for different macro supervisory tools. However this memorandum only covers the stress test.

FI believes that the size of the decline in the scenario is improbable but not impossible.

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 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, FI assumes a certain drop in earnings and a certain development in credit losses in various segments and markets and simulates the effect 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, naturally, is that a standardised test does not contain any specific information regarding, for example, the quality of an individual bank's credit portfolio or the measures a bank can take as needed to improve its capitalisation.

The banks' resilience is observed using a three-year scenario that contains a sharp downturn in the economy in all areas. The scenario assumes that the banks experience lower earnings and higher credit losses. The scenario also assumes 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 calculated using internal models increases by 7.5 per cent (on average) during the first and second year due to negative migration (higher risk weights). When risk-weighted assets are adjusted to reflect the Swedish floor on risk weights for Swedish mortgages the portfolio that is covered by the floor is excluded from the assumptions regarding migration. The banks are assumed to pay dividends of 40 per cent of their net profit given that their common equity Tier 1 capital ratio calculated in accordance with CRR/CRD 4 is higher than 10 per cent in 2014 and higher than 12 per cent during the period 2015-2016[2]. The assumption is made that the banks will not pay dividends if they report a loss.

The stress test assesses the ability of the four major banks to handle a very negative economic scenario.[3] The test focuses on the banks' credit risks. Eighty-five per cent of the capital requirements for the major Swedish banks are due to credit risks. The capital requirement for market risks and operational risks are assumed to remain unchanged during the period of the scenario.[4]

Information about the banks' credit portfolios is based on the banks' published quarterly reports for the second quarter of 2013. 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

[2] We have also included any additional need for capital due to the current floor on risk weights for Swedish mortgages.
[3] A more detailed account of the various assumptions is presented in the appendix.
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losses for the four banks in the scenario can be entirely traced back to differences in the composition of the loan portfolios.

The assumption regarding earnings is based on actual results for the first six months of 2013 and SME Direkt's consensus estimate for each bank for the third and fourth quarters of 2013[5]. For the period 2014-2016, a deduction of 10 per cent was drawn from expected earnings before credit losses for full-year 2013.

Results

In the stress test's scenario, the aggregate credit losses of the four major banks are estimated to total approximately SEK 260 billion. The risk-weighted assets are assumed to grow in the scenario, so the overall effect would equal a deterioration in the common equity Tier 1 capital ratios of at the most between 0.8 and 2.5 percentage points per bank during the scenario period. This is slightly less than last year, which is because the banks have increased their profitability and decreased lending in the riskiest segments. The effect when including the Swedish floor for risk weights is calculated to be between 0.3 to 2.1 per cent per bank. The lower effect is due to less volume migrating.

In the scenario, the credit losses are high in all industries and regions. Even if the levels of credit losses are generally high compared to current levels, they are not as high as the levels reached during the Swedish crisis of the 1990s or in the Baltic countries during the financial crisis.

The scenario entails relatively high credit losses linked to mortgages. It is based on an outcome of an unfavourable development in disposable income and unemployment combined with high expenditure for interest rate payments and amortisation. If economic growth is weak at the same time as unemployment rises and expenditure for loan financing increases sharply, house prices could be affected negatively. Some households with high loan-to-value ratios could then find themselves in a situation of negative equity. If these households were tobecome insolvent, it could result in credit losses.[6] However, even in the event of this kind of scenario, the majority of the banks' credit losses are attributable to lending to corporates and real estate firms.

[5] As of 20 October 2013

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

Table 1: Credit loss levels

Kreditförlustnivåer	2013*	2014	2015	2016	Total
Nordea	0,21%	1,34%	1,34%	1,16%	4,12%
Handelsbanken	0,08%	0,99%	0,99%	0,86%	2,97%
Swedbank	0,05%	1,17%	1,16%	0,96%	3,40%
SEB	0,09%	1,23%	1,22%	1,04%	3,64%
Totalt (medel)	**0,11%**	**1,18%**	**1,18%**	**1,01%**	**3,53%**

*based on actual results for Q1-Q2 and estimates for Q3-Q4 2013

Table 2: Profit/loss with change in equity

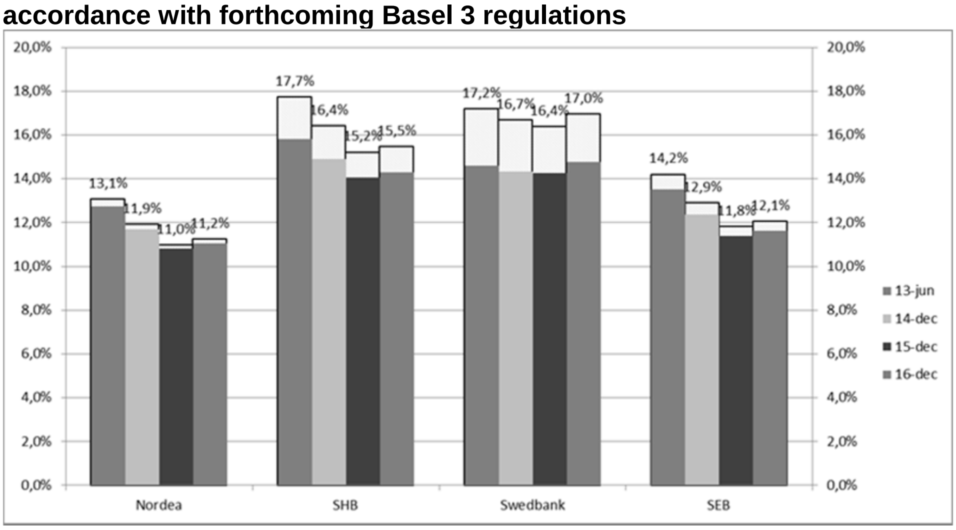
Miljoner kronor, 2014-2016	Nordea	Handelsbanken	Swedbank	SEB
Resultat före kreditförluster	114 766	52 331	53 754	49 324
Kreditförluster	117 899	51 494	44 661	51 151
Skatt	733	462	2 074	302
Resultat efter skatt	**-3 866**	**376**	**7 019**	**-2 130**
Utdelning	0	553	2 808	0
Förändring eget kapital	**-3 866**	**-177**	**4 212**	**-2 130**

Diagram 1. The banks' common equity Tier 1 capital ratios - Basel 2.5 without transition rules

Common equity Tier 1 capital ratios - Basel 3

During the period covered by the scenario (2014-2016), a number of regulatory changes will be implemented that will affect the banks' capital adequacy, chiefly the implementation of CRR/CRD 4. The effect of the new rules is estimated based on how they would affect the banks if introduced today and judged at mid-year 2013 to amount to between 0.4 and 1.9 percentage points per bank.

Diagram 1 . The stress test scenario's common equity Tier 1 capital ratios in accordance with forthcoming Basel 3 regulations



Note: The graph shows CET 1 capital ratios according to Basel 3 adjusted for the Norwegian floor on mortgage risk weights. The grey bars show the effect including the Swedish floor on mortgage risk weights while the white bars show the effect without the floors.

The stress test shows that the major banks have sound resilience in a scenario with a sharp economic downturn resulting in falling earnings and high credit losses in all areas. However, all of the banks do not have capital levels that entirely cover the buffer requirements that are planned for implementation next year. This could mean that, according to the coming regulation, that restrictions are put on dividend payments and bonuses.

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.

Exposure classes in 2013

The credit exposure of the major banks is divided into 41 different classes. A credit loss level is assigned to each class for 2014, 2015 and 2016. For exposures to Nordic 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.

Exponeringsklass
Sverige hushåll bolån
Sverige hushåll övrigt
Sverige företag låg
Sverige företag medel
Sverige företag hög
Sverige kommersiella fastigheter
Danmark hushåll bolån
Danmark hushåll övrigt
Danmark företag låg
Danmark företag medel
Danmark företag hög
Danmark kommersiella fastigheter
Finland hushåll bolån
Finland hushåll övrigt
Finland företag låg
Finland företag medel
Finland företag hög
Finland kommersiella fastigheter
Norge hushåll bolån
Norge hushåll övrigt
Norge företag låg
Norge företag medel
Norge företag hög
Norge kommersiella fastigheter
Estland - hushåll
- företag
- fastighetsbolag
Lettland - hushåll
- företag
- fastighetsbolag
Litauen - hushåll
- företag
- fastighetsbolag
Ryssland/Polen
Tyskland hushåll
Tyskland företag
Ukraina
Storbritannien
Kreditinstitut
Övrig verksamhet
Off balance

Assumptions about earnings
The banks' earnings during the second half of 2013 are based on SME Direct consensus forecast. These predictions are the average of around 20 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 asset 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 2014-2016 is set as the expected level for the full year 2013, with a deduction of 10 per cent.

Assumptions about credit losses from mortgages
In the scenario, credit losses from mortgages have been assumed to increase due to a significant drop in house prices as a result of higher unemployment combined with much more expensive loan financing. The majority of these credit losses occur in the scenario during the period 2014–2015.

Mortgages are the largest individual exposure class, amounting (in the second quarter of 2013) 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 noticeable 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 assumption is made in the scenario that new lending will grow by 5 per cent in the first year and be flat in the following years.

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 are when exposures are moved between different risk classes, which affects the banks' capital requirements. The banks use internal rating models to assign PD[7] and LGD[8] 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	2014	2015	2016
All banks (average)	7.5%	7.5%	0.0%

FI distinguishes between the migration assumptions in each bank based on differences in the models. As a result, some banks are more affected by the assumed migration effect. When the effects of the Swedish floor on mortgage risk weights are included in the calculations the portfolio covered by the floor is excluded from the assumptions regarding migrations.

7 *Probability of default*
8 *Loss given default*

The following 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 in which the capital requirement is calculated using internal ratings models rather than the standardised approach. Most banks still roll out portfolios. No portfolios are expected to be rolled out during the scenario.
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. This is somewhat of a simplification when banks use advanced IRB models.
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.

Other assumptions

The banks are assumed to pay dividends of 40 per cent of their net profit (assuming a profit) to shareholders during all three years on the condition that the common equity Tier 1 capital ratio calculated in accordance with Basel 3 is higher than 10 per cent in 2014 and 12 per cent in 2015 and 2016[9].

Tax is calculated as each individual bank's average (normalised) tax rate on a rolling-basis during the rolling three-year period. Neither loss carryforwards nor the assumption of a lower tax rate in general was taken into consideration during the exercise, even if a lower tax rate was decided in Q2 2013.

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

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

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[9] Also adjusted for Swedish floor for mortgage risk weights

Table 3: Simplified profit and loss statement

Resultaträkning
Miljoner kronor

	Nordea				SHB				Swedbank				SEB			
	2013*	**2014**	**2015**	**2016**	**2013***	**2014**	**2015**	**2016**	**2013***	**2014**	**2015**	**2016**	**2013***	**2014**	**2015**	**2016**
Resultat före kreditförluster	42 506	38 255	38 255	38 255	19 382	17 444	17 444	17 444	19 909	17 918	17 918	17 918	18 268	16 441	16 441	16 441
Kreditförluster	6 457	41 046	41 461	35 392	1 345	17 798	18 097	15 600	652	15 793	15 867	13 001	1 214	17 907	18 021	15 222
Skatt	8 795	-	-	733	3 876	0	-	462	3 829	485	468	1 121	3 498	-	-	302
Resultat efter skatt	27 254	-2 791	-3 206	2 130	14 161	-354	-653	1 383	15 428	1 640	1 584	3 796	13 556	-1 466	-1 580	917
Utdelning	15 546	-	-	0	7 231	0	-	553	10 908	656	633	1 518	7 212	-	-	0
Förändring eget kapital	**11 708**	**-2 791**	**-3 206**	**2 130**	**6 930**	**-354**	**-653**	**830**	**4 520**	**984**	**950**	**2 277**	**6 344**	**-1 466**	**-1 580**	**917**